

ENERGY AND WATER DEVELOPMENT APPROPRIATIONS FOR 2014

HEARINGS BEFORE A SUBCOMMITTEE OF THE COMMITTEE ON APPROPRIATIONS HOUSE OF REPRESENTATIVES ONE HUNDRED THIRTEENTH CONGRESS FIRST SESSION

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PART 8

NATIONAL NUCLEAR SECURITY ADMINISTRATION

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ENERGY AND WATER DEVELOPMENT APPROPRIATIONS FOR 2014

THURSDAY, FEBRUARY 14, 2013.

DEPARTMENT OF ENERGY—NATIONAL NUCLEAR SECURITY ADMINISTRATION, WEAPONS ACTIVITIES FY 2014 BUDGET

WITNESSES:

NEILE MILLER, ACTING ADMINISTRATOR, NATIONAL NUCLEAR SECURITY ADMINISTRATION

DR. DONALD COOK, DEPUTY ADMINISTRATOR FOR DEFENSE PROGRAMS, NATIONAL NUCLEAR SECURITY ADMINISTRATION

COL. JAMES DAWKINS, DEPUTY ADMINISTRATOR FOR MILITARY APPLICATION, NATIONAL NUCLEAR SECURITY ADMINISTRATION

Mr. FRELINGHUYSEN. Good morning. The hearing will come to order. Happy Valentine's Day to everybody. There is a basket in front of you, Administrator.

Ms. MILLER. Already dug into it.

Mr. FRELINGHUYSEN. Depends how sweet your testimony is but for after the hearing if anybody wants to help themselves, there are some New Jersey products. Mr. Fleischmann tells me that M&Ms are manufactured in Tennessee but I suggest that there may be higher levels of radioactivity than the ones in New Jersey.

Mr. SIMPSON. Some great big M&Ms.

Mr. FRELINGHUYSEN. Not starting off on a very good foot here. I'd first like to welcome our new ranking Member, Marcy Kaptur from the great State of Ohio. She's a good friend. Has served in Congress with distinction for many years. She and I and Pete Visclosky and Ken Calvert also serve on the Defense Appropriations Committee. So, it's, if you'll pardon the expression, a very happy marriage. And we're very pleased to be working with you.

This is a Committee that's worked in a pretty bipartisan manner over the years. And I worked very closely with her predecessor, Pete Visclosky, and I always try to match his sartorial splendor by wearing blue, too. But thank you, Pete, for your help and friendship—

Mr. VISCLOSKY. Sure.

Mr. FRELINGHUYSEN [continuing]. Over the last couple of years. I think we've been regarded on most issues as inseparable and I'm sure that will be true with Ms. Kaptur as well.

Mr. Calvert is not here but I do want to recognize he will be here at some point in time and rejoin the Committee.

Let me just recognize my Vice Chairman Alan Nunnelee from Mississippi who will, on occasions when I'm not up here, be taking over. Welcome back.

I'd also like to thank and welcome Judge Carter from Texas who will be here somewhere along the line. There are other hearings going on. People have other Committee assignments.

Mr. Chuck Fleischmann from Tennessee, it's good to have Tennessee back on the dais. It's good to have you here. He's already shown me a very high level of interest by calling me repeatedly in my office for a variety of things that are important, not only to the work at Oak Ridge but also important to the nuclear enterprise.

We're opening this hearing session this morning examining the nuclear weapons program run by the Department of Energy, a fitting start given the critical importance to these activities under the National Nuclear Security Administration.

While I generally prefer to begin our hearings season by inviting the Secretary to give an overview of the Department of Energy budget request, there is as of yet no budget request to discuss. This puts us in a difficult position. It's our charge each year to develop responsible appropriations bills. This takes time. While the budget request is delayed we have less time to analyze and in the future, debate our bills in full committee and on the floor in regular order.

Unfortunately, the budget request this year may be a month delayed or even later. With each day it's late, the chances increase that we are forced into another continuing resolution. And that is precisely what I and all of us on this panel want to avoid. Continuing resolutions reduce the ability of Congress to oversee taxpayer dollars and the Administration to make the wiser choices with public funding.

And so, I welcome our witnesses before us today to discuss programs funded from the Weapons Account, the Honorable Neile Miller, Acting Administrator for NNSA. Welcome, thank you for being here. You've worked at the Office of Management and Budget in a number of key positions within the Department of Energy and by all accounts have been responsible for many positive management changes. And we appreciate what you've done and the close working relationship you had with Tom D'Agostino.

Welcome back Dr. Donald Cook. He also has had a very distinguished career both here and abroad. Thank you very much for being with us this morning.

Colonel Dawkins, thank you for being here, for your service in the Air Force. From looking over your resume, it looks like you've flown 3,000 hours in some of our most remarkable aircraft so we appreciate your being here. And we know the tie between Defense and Civilian and we're highly appreciative of it.

It should be apparent by now how important weapons activities are to this committee. The reliability, safety and security of our nuclear deterrent is, to my mind, the single most critical responsibility of this subcommittee and the department.

In fact, this is the only account under our jurisdiction which gets a funding anomaly under this continuing resolution. These anomalies don't appear out of thin air. Increases to the NNSA budget are only available because we cut National Security Funding else-

where. This really is truly a zero sum game and the pot is getting smaller over time.

Just how small the pot is growing is painfully clear. Once the sequestration is implemented, weapons activities programs for fiscal year 2013 account will be cut by \$557 million, just over \$7 billion, approximately the same fiscal level as fiscal year 2011. And next year would be even bleaker.

These budget cuts may and probably will have serious impacts on our national security. Unfortunately, as in the case with the sequestered cuts across Government, no one is yet sure since these cuts were done without an eye to their effects. At a time when North Korea and Iran have their own nuclear ambitions and have flexed their muscles and most of our allies are spending less on defense, having a nuclear deterrent and knowing about what others are doing in this field is essential and it makes very good sense.

We, as a Committee, have worked hard to constructively guide, in a bipartisan manner, the NNSA in its work over the years. We've seen some improvements and transparency in the Administration's working relationship with the Department of Defense.

However, old challenges persist such as problems with project management, contractor oversight, and security at some of our sites. We plan on having in-depth hearings on construction management and site security later this spring but I hope that today we'll be able to get an update on initiatives you've taken to address some of these problems.

You'll also be facing questions on how the continuing resolution and impending sequestration may impact your programs, your dedicated workforce and I repeat that, your dedicated workforce and the communities that support them. We must understand these impacts if we are to understand how to develop a budget for fiscal year 2014.

While we have sustained funding, we have done so without the benefit of comprehensive planning we required to understand your overall work. I suspect you'll continue to ask for funding increases but without the insight that these documents provide we, and the public at large, will have less confidence in your ability to administer billions of dollars. This is unacceptable for an institution with a mandate as important as yours and we'll expect your assurances that you'll provide us the documents we respectfully requested.

Once again, welcome to our witnesses and I turn to my ranking member for any comments she may have.

[The information follows:]

**Opening Statement
Chairman Frelinghuysen
Budget Hearing on Weapons Activities Programs
February 14, 2013**

The hearing will come to order.

I'd like to begin by welcoming our new Ranking Member, Congresswoman Marcy Kaptur from the great state of Ohio, to the subcommittee. She is a good friend and I look forward to working with her to provide a balanced and bipartisan oversight of the agencies under our jurisdiction over the next two years.

I'd also like to welcome two new faces, and one familiar face, back to the subcommittee. Mr. Calvert, it's good to have you back. Judge Carter, Mr. Fleischmann, welcome.

We are opening this hearing season examining Nuclear Weapons programs run by the Department of Energy, a fitting start given the critical importance of these activities.

While I generally prefer to begin our hearings season by inviting the Secretary to give an overview of the budget request, there is, as yet, no budget request to discuss.

That puts us in a difficult position. It is our charge to develop responsible appropriations bills each year. This takes time. When the budget request is delayed, we have less time to analyze and debate our bills in full committee and on the Floor in regular order. Unfortunately, the budget request this year may be a month delayed...or even later.

With each day it's late, the chances increase that we are forced into another CR. And that is precisely what I, and all of us on this panel, want to avoid. Continuing Resolutions reduce the ability of Congress to oversee taxpayer dollars and the Administration to make the wiser choices with public funding.

And so I welcome our witnesses before us today to discuss the programs funded from the Weapons Activities account. The Honorable Neile (NEIL) Miller, Acting Administrator for NNSA, welcome. You worked at the Office of Management and Budget, and in a number of key positions within DOE, and by all accounts have been responsible for many positive management changes. Dr. Cook, welcome back. And Colonel Dawkins, welcome to you.

It should be apparent by now how important Weapons Activities is to this subcommittee. The reliability, safety and security of our nuclear deterrent is, to my mind, the single most critical responsibility of this subcommittee and the Department. In fact, this is the only account under our jurisdiction which gets a funding anomaly under the CR. And these anomalies don't appear out of thin-air. Increases to the NNSA budget are only available because we cut national security funding elsewhere. This is truly a zero-sum game, and the pot is getting smaller over time.

Just how small a pot is growing painfully clear. Once sequestration is implemented, Weapons Activities programs for fiscal year 2013 account will be cut \$557 million, to just over \$7 billion – approximately the same level as fiscal year 2011. And next year would be even bleaker. These budget cuts may, and probably will, have serious impacts on our national security. Unfortunately, as is the case with the sequester cuts across government, no one is yet sure, since these cuts were done without an eye to their effects.

And, at a time when North Korea and Iran have their own nuclear ambitions, and most of our allies are spending less on defense.

We have worked hard to constructively guide, in a bipartisan manner, the NNSA in its work over the years, and we have seen some improvements in transparency and the NNSA's working relationship with the Department of Defense.

However, old challenges persist, such as problems with project management, contractor oversight, and security at our sites. We plan on having in-depth hearings on construction management and site security later this spring, but I hope that today we will be able to get an update on initiatives you have taken to address these problems.

You will also be facing questions on how the Continuing Resolution and the impending sequestration may impact your programs, your dedicated workforce and the communities that support them. We must understand these impacts if we are to understand how to develop a budget for FY14.

While we have sustained funding, we have done so without the benefit of comprehensive planning we require to understand your overall work. I suspect that you will continue to ask for funding increases, but without the insight that these documents provide, we, and the public at large, will have less confidence in your ability to administer billions of dollars. This is unacceptable for an institution with a mandate as important as yours, and we will expect your assurances that you will provide us the documents we respectfully requested.

Once again, welcome to our witnesses, and I'll turn to the Ranking Member for any comments she may have.

Ms. KAPTUR. Thank you, Mr. Chairman, very much. And what a great pleasure it will be to serve on this subcommittee with you as Chair, the great leadership that you provide and to work with all of our Members including on my side of the aisle here, Congressman Visclosky, who did such a great job in leading efforts in the past and has enormous responsibilities now as the ranking on our defense subcommittee.

So, it's great to see you here this morning. And to all the Members, let me just say historically for a woman to rise even to ranking on this or any subcommittee still makes history by some accounts. And so, in assuming this position today, I particularly want to place it in the record the name of Congresswoman Lindy Boggs who, when I first arrived in committee, in Congress and ultimately after a decade gained a position on the Appropriations Committee, she was the only woman on my side of the aisle. And she let me sit right next to her and it was she who taught me that when we are in full session in the Appropriations Committee that I had to stand up. That we were different than the other committees and I learned so much from her and I want to especially remember her service to our country this morning.

I would also like to add my welcome, Mr. Chairman, to Administrator Miller and to Dr. Cook and to Colonel Dawkins and thank you all for your great service to our country and thank you very much for the special briefing that you provided to us yesterday.

The National Security missions of the NNSA are vital to the interests of our country and not only to the nuclear weapons program but also to the nuclear navy and the nuclear non-proliferation mission we will hear about later this month.

While the issues we are discussing today are profound, they also involve considerable sums of money. And I am reflecting on what the President is saying about running a Government that is smarter and not necessarily bigger. I was very interested that in the State of the Union the President devoted almost two paragraphs to the issue of nuclear weapons and I will just place on the record some of his words. That we will do what is necessary to prevent countries that have ill intentions from getting a nuclear weapon and at the same time we will engage Russia to seek further reductions in our nuclear arsenals and continue leading the global effort to secure nuclear materials that could fall into the wrong hands because our ability to influence others depends on our willingness to lead.

Our responsibility is to ensure that the dollars provided by the American taxpayer for the weapons complex are spent pursuant to a coherent strategy and as wisely as possible. I want to make clear to you there is nothing I take more seriously, and I know my colleagues agree, in our role as Members of Congress than issues surrounding decisions regarding war and peace in general and nuclear weapons in particular.

While I am new to this subcommittee, I have served on the Defense Subcommittee with Chairman Frelinghuysen for eight years and recognize there are complex issues related to NNSA's mission. But I would like to raise just two concerns with you today, in particular.

The first is how we ensure our facilities are secure. The incident at Y-12 where three anti-nuclear protestors, including an 82 year old professed sister, were able to breach the Y-12 site's high security perimeter and reach the highly enriched uranium materials facility exposed exasperatingly systemic flaws to the NNSA's approach to securing these critical facilities.

The second issue I will raise today is the repeated and spectacular cost increases that seem to plague the NNSA. From the B61 life extension program to the uranium processing facility, the NNSA seems to have a difficult time meeting cost and schedule targets. This is so difficult for us and unacceptable in any fiscal environment. It is particularly alarming in the context of the Budget Control Act and the very difficult choices we all face because of the discretionary spendings caps set in place through 2022.

In an era of declining budgets, we simply cannot afford large cost overruns in any program, much less one so important to our national security. I look forward to hearing your testimony and Mr. Chairman, I thank you very much for the time.

Mr. FRELINGHUYSEN. Thank you Ms. Kaptur.

Ms. Miller, welcome.

Ms. MILLER. Thank you very much.

Mr. FRELINGHUYSEN. Thank you for being here.

Ms. MILLER. Thank you very much and before I begin my statement I just want to respond particularly on Valentine's Day, you mentioned happy marriages and particularly because of my own very happy marriage, I welcome your comments on marriage on Valentine's Day. My red shoes are the only thing I wore.

Chairman Frelinghuysen, Ranking Member Kaptur and distinguished members of the subcommittee, thank you for having me here to discuss the NNSA programs funded in the weapons activity account. Your ongoing support for the men and women of the NNSA and the work that they do and your leadership on some of the most challenging national security issues of our time has helped keep the American people safe, helped protect our allies and has certainly enhanced global security.

The NNSA weapons activity account and its associated programs, projects and activities remain a priority for the administration. But as you are well aware, we face considerable budget uncertainty. We are currently operating, as you said, under a continuing resolution that expires on March 27th.

While Congress approved an anomaly in the CR to allow the weapons activities account to operate at the funding level requested in the FY2013 President's Budget, other potential fiscal constraints including a possible reduced overall funding level for the balance of the fiscal year and a potential sequestration of funds present great challenges to managing our large and critical nuclear infrastructure into our workforce across the country.

I want to assure you that the NNSA is being thoughtful, pragmatic and efficient in how we achieve the nation's nuclear security objectives and shape the future of nuclear security.

As someone with many years of Federal Government experience as the nexus of programs and budget, I can tell you that while we are challenged to be successful in a time of budget uncertainty, we are also dedicating ourselves to driving efficiencies into our pro-

grams so that we can make the best use of taxpayer dollars with which we are entrusted. Above all, we are challenging ourselves to reject ways of doing business that are holding us back from this but which have survived long into the post-Cold War Era simply because they are the way we've always done it.

The need to strategically modernize our facilities, infrastructure and weapons systems is urgent. But we must and we are evaluating our programs and challenging the assumptions for all of our programs and projects to rethink their underlying premises and to ensure that we are charting a path to the future that is well-reasoned, responsible and reflects the best ways of doing business today.

As the President has committed, the NNSA is working to make sure that we have the infrastructure, weapons systems and the supporting science to certify the nation's nuclear weapons it needs through strategic modernization investments. Whether or not we were facing this moment's budget uncertainties and fiscal constraints, we have a responsibility to prioritize what we do and to do it in a way that makes sense not only to us but to you, to our partners at the Department of Defense and to the American taxpayer.

To that end, we are working very hard to guarantee our ability to deliver the mission. Something my colleagues throughout the nuclear security enterprise and over the past 60 plus years have always done for this nation. For example, in the fiscal 2013 President's budget, the NNSA deferred construction of the chemistry and metallurgy research replacement nuclear facility known as CMRR-NF for at least five years which was fully supported by this committee.

This decision, crafted by the leadership of the NNSA together with the Directors of our National Laboratories, was made in consultation with the Department of Defense and was approved by the Nuclear Weapons Council. This decision was based on the confluence of several factors; the impact of the fiscal year 2012 cuts, the Budget Control Act and caps on security spending, concerns raised by the Congress and the Administration on out year cost growth for the weapons program and the need to balance critical modernization projects and operational priorities responsibly including the B61 bomb life extension program and the uranium processing facility. All of which are multibillion dollar investments over the coming decade.

As a result, in an ongoing partnership with our laboratories we rethought our plutonium strategy and developed a way to bridge the gap to maintain the plutonium capabilities needed for a safe, secure and effective stockpile while deferring construction on a multibillion dollar construction project to ensure we would execute other mission priorities.

Today, I ask for your continued support going forward for our plutonium strategy and our request to reprogram \$120 million of fiscal 2012 funding. We need these funds to maintain plutonium capability by utilizing existing facilities. And it is essential right now to meet near term plutonium activities. The absence of immediate reprogramming support from Congress will place the stock-

pile at risk through the inability to fully support stockpile modernization activities.

If we all want to see nuclear modernization efforts move forward, and it's all of our responsibility to ensure that it does, then we need to make certain we are authorized as well as appropriated to proceed with maintaining essential enabling capabilities including plutonium and uranium infrastructures through a holistic prioritization of requirements.

We must continue to chart the path of nuclear security together. I have personally witnessed the evolution of these programs for many years from my positions both within the NNSA as well as from perspectives in other places in the U.S. Government. The enduring partnerships between NNSA and the Department of Defense between Congress and the Administration and between our own sites and headquarters is vital to getting the mission accomplished and maintaining the security of the nation.

NNSA cannot survive without it and the United States' nuclear deterrent will deteriorate without it. NNSA dating back decades to the Manhattan Project traditionally has operated somewhat as a confederation of independent sites and missions all working on a path toward a clear goal. I've often said that nuclear weapons may not be part of a growth industry. We have to be smarter, more unified, more diverse both within NNSA but also more broadly within the larger deterrents and nuclear security community.

But regardless of our organization chart or how we structure what we do, we cannot be successful without the right people because at the end of the day every successful organization owes that success to its people.

To this end, we have reinforced our project management organization and performance through the hiring of Bob Raines, who, with 25 years of experience at DoD's Naval Facilities Organization has brought a new clarity to the way we approach acquisition and project management across NNSA.

We have aggressively sought physical security program improvements among other ways through the hiring of Steve Asher to act as our new Chief of Defense Nuclear Security.

Mr. Asher brings with him 33 years of on the ground nuclear security experience with the United States Air Force.

Arguably, most significantly, we have realigned the Federal oversight of roles, responsibilities and reporting of all our sites and unified them in partnership under one person, my deputy Michael Lempke, who came to us from a distinguished career at Naval Reactors. And these are just a few of the people who are working so hard to bring about these changes.

We are ensuring that we have the right people, using the right processes in the right ways across the NNSA. Mission and mission support teams are co-equal supporting each other's needs on everything from regulatory issues to contracting.

You saw it with our future shaping nuclear production office which covers Pantex and Y-12 without regard for geography. You can see it in our strong unprecedented response to security lapses and you can see it in our plutonium strategy where creative thinking across our enterprise has given us a path forward in a time of tight budgets.

The men and women of the NNSA and the entire nuclear security enterprise are doing the work of the American people and that the American people need us to do and the President's forthcoming budget will allow us to continue to do that work. We've worked hard to realign ourselves for the future and your continuing support has been a vital part.

I, again, thank you for having me here today and I look forward to answering your questions.

[The information follows:]

Statement of Neile Miller
Acting Undersecretary for Nuclear Security/Acting Administrator
National Nuclear Security Administration
U.S. Department of Energy
on
Budget Priorities for NNSA Weapons Activities
before the
Subcommittee on Energy & Water Development
House Committee on Appropriations
February 14, 2013

INTRODUCTION

Chairman Frelinghuysen, Ranking Member Kaptur, and distinguished members of the Subcommittee, thank you for having me here to discuss the NNSA programs funded in the Weapons Activities account. Your ongoing support for the men and women of NNSA and the work they do, and your leadership on some of the most challenging national security issues of our time, has helped keep the American people safe, helped protect our allies, and enhanced global security.

The NNSA Weapons Activities (WA) account and associated programs, projects, and activities are a priority for the Administration, but we face considerable budget uncertainty. We are currently operating under a Continuing Resolution (CR) that expires March 27, although an anomaly in the CR has provided Weapons Activities with funding at the level requested in the FY 2013 President's Budget. Other potential fiscal constraints, including a possible reduced overall funding level for the balance of the fiscal year, as well as other budget discussions, have presented the NNSA with opportunities to further drive efficiencies into our budgets. However, this fiscal uncertainty, as well as the uncertainty resulting from a potential sequestration, present great challenges to managing our large and critical nuclear infrastructure and to our workforce across the country at our eight sites in seven states.

I want to assure you that NNSA is being thoughtful, pragmatic, and efficient in how we achieve the Nation's nuclear security objectives and shape the future of nuclear security.

SEQUESTRATION IMPACTS

Should sequestration take effect on March 1, 2013, the DOE and NNSA could be severely impacted, along with other Federal agencies. The DOE/NNSA plays a critical national security role in the following areas: ensuring a safe, secure and effective nuclear weapons stockpile, leading critical nuclear nonproliferation and nuclear security programs around the globe, providing for Navy's nuclear propulsion capabilities, and developing and deploying nuclear counterterrorism and emergency response capabilities. As Secretary Chu has previously stated,

sequestration could affect thousands of jobs and reduce the Department's ability to serve the American people. These cuts could come five months into the current fiscal year, forcing the Department to absorb the spending reduction in a seven-month period rather than an entire year.

Under the current law, the NNSA FY 2013 budgetary resources could be cut by roughly 7.7%, which equates to an effective reduction of over 13% when measured over the remaining seven months of the fiscal year.

More specifically, under sequestration the level for the WA appropriation could be nearly \$600M below the FY 2013 President's Budget, and more than \$200M below the FY 2012 enacted level. At the program level, the largest impacts could be on **Directed Stockpile Work (DSW) program** and supporting scientific and facility operational activities, and on the **Defense Nuclear Security (DNS) program**. Specifically, for DSW, the reduced funding level would result in impacts to the Life Extension Programs (LEPs) delaying deliveries to the Air Force and the Navy. Other weapon system programs could be broadly impacted due to reduced surveillance and assessments, delayed surety improvements, and increased deferred maintenance. Scientific research to build and maintain tools for stockpile certification without returning to underground nuclear testing and facility operations required to execute LEPs could also be significantly delayed. We could need to protect the Navy W76-1 deliverables, but could need to slow the B61-12 LEP, W88 Alt 370, W78/88-1 Study efforts, and not meet some B83 requirements.

Sequestration could also have significant impact on the DNS organization because it could cause reductions in resource allocation across all functional areas in the security program.

Regarding the **NNSA workforce at our labs and plants**, more than 5,000 contractor jobs could be impacted through either work hour reductions or other personnel actions. Agreements with our customers, assumptions and plans, and deliverables for the nuclear weapons stockpile would be delayed, some of these across the board cuts could affect all facets of NNSA: the safety and security of the stockpile, the facilities that maintain that stockpile, and the people and processes that provide the nuclear forces that provide us all with security. That is why we refer to it as the Nuclear Security Enterprise (NSE). For example, the production support workforce at the Pantex plant supporting Directed Stockpile work could be reduced by 20% through layoffs or work hour reductions, resulting in our inability to adequately support stockpile workload.

NNSA-WEAPONS ACTIVITIES PROGRAM STATUS UPDATES

Defense Programs

We are continuing our critical work to maintain the nation's nuclear stockpile, and ensuring that, as long as nuclear weapons exist, the stockpile is safe, secure, and effective.

Under the current FY 2013 CR anomaly, the NNSA is operating at six-months worth of funding for the \$7.6 billion appropriation for the Weapons Activities account. The Defense Programs portion of the Weapons Activities account is around \$6.24 billion.

Stockpile Management

We continue to maintain and support certification of the stockpile as safe, secure and effective without underground nuclear testing. Regarding nuclear modernization activities, we continue to execute our Life Extension Programs: The B61-12 LEP is in Phase 6.3 development engineering; production on the W76-1 LEP continues to meet required deliveries to the Navy; the W88ATL is in phase 6.3 development engineering; and we are moving out on a phase 6.2 study for the W78/88-1 LEP as an interoperable warhead for the submarine and intercontinental ballistic systems.

We remain committed to completing key dismantlements, with \$51.3 million in FY 2013 to continue reducing the number of legacy nuclear weapons retired from the stockpile. NNSA has previously committed to completing the dismantlement of all warheads retired as of FY 2009 by FY 2022 and we continue to be on a path to meet that commitment.

Stockpile Science

The Science Campaign's 2013 Budget request of \$350.1 million supports expanding and refining our experimental capabilities that are relevant to Directed Stockpile Work and that advance the predictive capabilities used in the Annual Assessment. The Science Campaign is the stockpile stewardship program's insurance policy against the need to return to underground testing. This program primarily develops the scientific data and tools which defense programs need to continue to assess the safety, security and effectiveness of the current stockpile and explore advanced certification pathways for future stockpile actions including Life Extension Programs. Science Campaign activities rely on existing experimental facilities that reside at the DOE labs, including; DARHT, LANSCE, U1a, and National Ignition Facility (NIF). Science campaigns are also primary sponsors of capabilities that reside at the Nevada National Security Site for the conduct of subcritical experiments. We have accomplished a major subcritical experiment this year by completing the "Gemini Series" which, along with advances in diagnostics, also demonstrated a key capability which will contribute to future stockpile assessments. By 2015 Science Campaign will complete a Level 1 Milestone that addresses concerns associated with pit reuse: providing a technical basis for determining which existing pits can be re-accepted for use in future systems. In the future Science Campaigns will be improving diagnostic capabilities in these experiments to reduce remaining uncertainties in our assessments. The Science Campaign also provides technical capabilities supporting Intelligence Community assessments of foreign nuclear weapon activities. A classified letter recently sent from the Director of National Intelligence to the Secretary of Energy, describes the need for and value of these efforts.

In FY 2013, \$460 million was requested for our Inertial Confinement Fusion and High Yield Campaign to operate NNSA's suite of world-leading high energy density facilities -- the National Ignition Facility (NIF), Omega, and Z -- to support stockpile stewardship in a safe and secure manner. The NIF has transitioned to routine operations, with support of stockpile science and near-term stockpile needs balanced with progress on the path toward ignition. We continue to advance the diagnostic and experimental capabilities at all our ICF facilities, increasing the value of the experimental data and the impact our investments have on improving design codes and the stockpile.

The ICF Program submitted to Congress in December, 2012 a report on the path forward to achieving ignition and has achieved record densities and pressures, approximately one-half of that needed for ignition and neutron yields a factor of three to ten less than needed for a propagating burn. This has been coupled with significant progress in understanding the issues that are limiting the demonstration of ignition at the NIF, including energy coupling to the capsule, symmetry, and mix.

The Advanced Simulation and Computing campaign's 2013 Budget request of \$600 million is supporting the continued improvement of full system calculations and metric suites that are essential to annual assessments and also to future stockpile changes. Simulation on some of the largest supercomputers in the world enable national laboratory staff to address: (1) issues that affect the health of our deterrent, including aging and component lifetimes; and (2) topics critical for LEPs and stockpile modernization, including reuse and enhanced multipoint safety.

The science-basis of the codes is facilitating the movement from under-ground test calibration to models validated by above-ground experiments. This is matched with the challenge to maintain adequate critical skills and capabilities to support current and future stockpile requirements. Annual assessment, peer review, Significant Finding Investigations, and assessment of foreign/proliferant devices are reliant upon more responsive modeling and simulation capabilities. Platform investments are providing capability for routine use of high resolution 3-D simulations to address stockpile questions. Continued system investment provides the ability to accurately assess foreign or improvised nuclear devices and address other national security questions in a secure and timely fashion.

For over a decade, NNSA has been building the science, technology, and engineering tools and capabilities needed to take care of the stockpile. We are utilizing these analytical tools and capabilities towards the mission of maintaining a safe, secure, and effective stockpile and performing the necessary life extension work. These capabilities also provide the critical base for nonproliferation and counter-terrorism work, allowing us to apply our investments to the full scope of our mission.

Infrastructure

To support our stockpile and to continue producing the world-class capabilities we need to modernize our Cold War-era facilities and maintain the nation's expertise in uranium processing and plutonium research. The 2013 Budget included \$2.24 billion to maintain our infrastructure and execute our construction projects.

In consultation with the Department of Defense (DoD), the NNSA deferred construction of the Chemistry and Metallurgy Research Replacement Nuclear Facility (CMRR-NF) for at least five years in FY 2013. While this decision allows the NNSA to focus on execution of the Uranium Processing Facility (UPF) project and other significant priorities, it requires investments in existing infrastructure to maintain critical plutonium support capabilities. Over the past year, NNSA developed an interim plutonium strategy in coordination with the DoD and our National Labs; your approval of our reprogramming request (\$120M) will allow us to fund the interim strategy's near-term investments and maintain continuity in our plutonium capabilities across sustainment, production and qualification activities. It is important to understand we remain committed to supporting the nation's only plutonium capability, and while we have facilities in place today that support the plutonium needs critical in our LEP activities—including pit production and qualification—we must look to the future for an enduring strategy and planning is underway. We appreciate the support of this Committee in understanding that NNSA must balance its priorities within the current budget environment, with executing an interim strategy and adjusting plans for our enduring strategy to maintain capability.

Uranium Processing Facility (UPF) status

We continue to make good progress on the UPF project and remain fully committed to ensuring the design is sufficiently mature and that technical uncertainties are resolved before we establish the project's baseline. Furthermore, we continue to take appropriate and conservative steps to confirm that safety systems and components are selected in the design process. We have instituted a series of structured reviews to critically assess our progress, one of which identified several areas in which process systems required more floor space. And, although more design effort was required to modify the facility's structure, it is imperative we get it right. Today we are slightly more than sixty-five percent design complete and remain on track to finalize the design work in mid-FY14. The project engineers have completed the design work for the Bear Creek Road relocation, an important first step in preparing the site for construction for the nuclear facility. We are working with the US Army Corps of Engineers on this project to award a firm fixed price contract in the third quarter of FY13. As a part of our acquisition strategy we are employing other Agencies' construction expertise when they can provide a good value to us.

High Explosive Pressing Facility project status

The High Explosive Pressing Facility project at the Pantex Plant in Texas, which will provide a new high explosive main charge pressing facility with the capability to meet stockpile modernization needs, continues to make excellent progress. This project represents a move towards utilizing fixed priced construction contracts as part of our acquisition strategy. At approximately 40% construction complete, we are on track to deliver this work under budget and ahead of schedule. Again, we are employing the US Army Corps of Engineers in oversight of this project.

Kansas City Responsive Infrastructure Manufacturing and Sourcing (KCRIMS) status

Transformation of the Kansas City Plant moves ahead under the Kansas City Responsive Infrastructure Manufacturing and Sourcing (KCRIMS) project. Construction of Buildings 1, 2, 3 and 5 of the KCRIMS Project was completed on schedule. There are currently eleven move phases underway. The relocation project is on schedule and within budget. KCRIMS relocation is planned to be complete by August 2014.

Defense Nuclear Security (DNS)

Following a comprehensive review of its organization and lines of authority, the NNSA established a new Office of Infrastructure and Operations as the center of gravity for operational authority over all NNSA activities, to include security. With the new office assuming operational control over security implementation across the nuclear security enterprise, the Defense Nuclear Security (DNS) mission was realigned to focus on policy development, strategic planning, and performance assessments of field-led activities. We also realigned security resource execution to the Office of Infrastructure and Operations in alignment with its operational authority. NNSA is committed to change our culture of how we assess security so that we are less reliant on reports written by others and more focused on our own real time assessments with a "boots-on-the-ground" approach.

As you know, in the early morning hours of July 28, 2012, three individuals trespassed onto the Y-12 National Security Complex and defaced a building where the United States stores highly enriched uranium. While their actions were wholly unacceptable, the intruders who cut through fences never gained access into the facility or came close to any material. Our guard force was slow to respond, but the individuals were interdicted and arrested. In the aftermath of that event, we have learned a lot about our organization, the assumptions we had made, and how we communicate.

The incident at Y-12 was a completely unacceptable breach of security and an important wake up call for our entire complex. The security of our nation's nuclear material is our most important responsibility, and we have no tolerance for personnel who cannot or will not do their jobs. In response to the incident, we have taken strong and decisive action to fix the issues that led to the incident at Y-12.

We took steps that led to the removal of the contractor responsible for the guard force at the facility, we have removed the top leadership at the site, and the officers associated with the incident were fired, demoted or suspended without pay. Additionally, federal officials at the site and at headquarters with security oversight responsibilities no longer hold these senior level positions and no longer have anything to do with nuclear security. We also have been working to make the structural and cultural changes required to improve the security throughout our entire complex.

DNS is in the process of recruiting subject matter experts to join the federal service to execute a performance-based assessment process that will be objective and independent of the new operational management structure. This will be part of a three-tiered assessment process to identify shortcomings and ensure they are accurately reported. The first tier will be contractor self-assessment. We expect the contractor to self-identify all problem areas. The second tier is the DNS assessment of the contractor and Federal site personnel performance. DNS is committed to change the culture of how it assesses security, so that it is less reliant on oversight reports written by others and more focused with a “boots-on-the-ground” approach. The third and final tier is independent oversight provided by the Office of Health, Safety, and Security. And, of course, apart from this three-tiered assessment and inspection regimen, we expect Federal site personnel to perform quality assurance activities on a routine basis.

The Secretary and the Acting Administrator are committed to hire the right caliber of security professionals; those with operational nuclear security field experience, to reshape and continue to improve the culture of nuclear security at NNSA. This initiative is focusing our leadership on instilling a culture that embraces security as an essential element of the NNSA mission, which is to provide the utmost protection for national security resources.

Another example of what is being done to improve security across the Nuclear Security Enterprise is the Protective Force Training Program Reform Initiative. This training initiative is designed to establish core security proficiencies that are required at all Field Sites and is modeled after the program used by the United States military.

Cyber Security

The NNSA maintains a strong cyber security program focusing on the classified computing environment. The highly complex and global nature of the NNSA mission environment makes it critically important that information and information assets are managed and protected using a risk management approach. The NNSA mission is further complicated by the geographically diverse nature of the NNSA enterprise. A flexible, comprehensive Risk Management Program promoting risk-informed decision making, and providing approaches and methodologies to conduct risk management activities, will greatly benefit the enterprise, ensuring that information security considerations are integrated into the enterprise architecture and business processes of the organization.

In coordination with the Department’s Chief Information Officer, the NNSA focus is to transform our computing environment in support of the “OneNNSA” vision. The Department will accomplish this by delivering two pillars of our strategy: the NNSA Network Vision (2NV)

and the Joint Cybersecurity Coordination Center (JC3). The 2NV enhances and modernizes the current computing environment by providing a secure, mobile, agile and adaptive IT infrastructure which will allow our workforce to perform their duties from any device, anywhere, at any time. JC3 allows the Department to understand the “health” of that computing environment from a cyber security and network operations perspective.

During FY13 the Department will implement a secure infrastructure environment to begin the implementation of NNSA mission applications and unclassified computing requirements to support the agency goals of “OneNNSA.”

Nuclear Counterterrorism and Incident Response (NCTIR)

The NNSA maintains one-of-a-kind emergency response capabilities, which allow us to respond to nuclear or radiological incidents anywhere in the world. We are successfully implementing capability improvements for our First Responders and Consequence Management Home Team. Additionally, we are concluding a major exercise with our P3 international partners. Progress continues in assisting the FBI in fielding, training and equipping teams to stabilize a terrorist nuclear device. If a sequestration is imposed, the implementation of Stabilization will stop. We will no longer continue to modernize our emergency communications capabilities and will stop work on improvements to P-Tunnel at the N2S2.

Nuclear Counterterrorism and National Security Applications

In response to the President’s concern for the threat of nuclear terrorism and related prevention goals within both the 2010 Nuclear Posture Review and the 2011 National Counterterrorism Strategy, we established a new organization that is now the focal point for all counterterrorism and counter proliferation activities within NNSA. This organization, the Office of Counterterrorism and Counterproliferation, provides unique technical contributions based on NNSA’s core nuclear science and technology expertise, and works to develop and strengthen nuclear counterterrorism capabilities, policy, and practice domestically and internationally. In addition, the Office of Counterterrorism and Counterproliferation is designed to coordinate all nuclear counterterrorism, counterproliferation, and post-detonation nuclear forensics related efforts without drastic restructuring. In FY 2013, some key accomplishments include:

- Met multiple milestones in providing systematic analysis of potential nuclear device threats, supporting U.S. military, homeland security, and intelligence requirements. This includes the Tier Threat Modeling Archive-Validation effort that will strengthen our confidence in various “render safe” scenarios, improving national-level planning and emergency response operations.
- Worked with close allies to implement 2012 Nuclear Security Summit initiatives, particularly with respect to characterizing high risk nuclear materials and dealing with potential nuclear threat devices. Held a bilateral nuclear material transportation security table-top exercise with Japan.

- Conducted the 100th Weapons of Mass Destruction (WMD) Counterterrorism tabletop exercise in the United States, bringing together Federal, State, local and private sector officials and first responders to strengthen U.S. capabilities to prevent and respond to terrorist incidents involving WMD materials. Included international observers at several exercises.

Office of the Administrator

And finally, we will need your support for the NNSA's Office of the Administrator (OA) account. This funds all of federal personnel who plan, manage, and oversee the operation of NNSA Defense Programs, Nuclear Nonproliferation, Defense Nuclear Security, nuclear safety, Counterterrorism, nuclear incident response, cyber security and mission support which strengthen U.S. security. The OA account cannot be an afterthought; it is an essential enabler of the federal roles and missions that are the heart of our Enterprise.

The combination of the level of congressional funding for this account for the past two years, coupled with the indiscriminate cuts of sequestration, will strain this account. Despite our aggressive measures to manage to the new bottom line, including cutting travel and support services by about 1/3 and offering buy outs to help shape the force, we face the threat of furloughing about 1,750 Federal employees. In addition to the aforementioned contractor impacts, this will pose a challenge for all of the NNSA programs whose staff are funded in the OA account.

IMPROVING NNSA MANAGEMENT

We are continuously improving so we are able to do the work the American people need us to do, in a time when everyone is looking to do more with less. We are positioning ourselves for the next decade by making big decisions focused on the future.

Most significantly, on January 8, 2013, the NNSA awarded a contract worth \$23 billion over 10 years to Combined Nuclear Security (CNS) for the combined management of the Y-12 National Security Complex in Tennessee and the Pantex Plant in Texas, with an option for phase-in of Tritium Operations performed at the Savannah River Site in South Carolina. Although the award is currently under an automatic stay while being protested at the GAO, the new business model will shape the future of the United States' Nuclear Security Enterprise and will save significant taxpayer dollars over the next decade. Furthermore, combining contracts and site offices will allow us to improve performance, reduce the cost of work, and operate as an integrated enterprise.

We will continue to seek strategies to engender meaningful improvement in performance and reduction of costs for taxpayers at every nuclear security enterprise site in future competitions as well as existing contracts.

In addition, the recently established Office of Acquisition and Project Management (NA-APM) continues to integrate our acquisition and project management staffs resulting in \$20 Million in reimbursements from contractors last year as we utilize our contracts to hold them accountable for unsatisfactory performance. We issued an unambiguous design policy for our complex nuclear projects ensuring that sufficient design work is completed prior to approving project baselines at Critical Decision 2. We have completed 12 projects that were baselined in 2006 or later, eleven of the twelve were completed on or under their approved baelines, and the entire portfolio was completed 10 %, or \$32 million, under budget. We are confident that the lessons learned in delivering this work are applicable and scalable to the major systems projects we have had problems with in the past.

Finally, one of the major actions NNSA took last year was standing up a consolidated office to oversee and direct the operations and infrastructure. The new office will facilitate NNSA's management of the Nuclear Security Enterprise across all eight sides, and will make management more efficient and effective.

CONCLUSION

Our mission is vital, and your past support has been key in helping us accomplish it. The NNSA budget and our programs reflect our commitment to keeping the American people safe while continuously improving and doing our part in a time of fiscal austerity. We are looking toward the future and building an organization that is aligned to succeed. I look forward to working with each of you to help us do that. Thank you.

Mr. FRELINGHUYSEN. Thank you very much, Administrator, your testimony came to us actually this morning. I don't know whether you know that.

Ms. Miller. I didn't know that. Yes.

Mr. FRELINGHUYSEN. In the future, if we could perhaps get it a little earlier so we could review it but we thank you for it.

Ms. MILLER. Certainly.

Mr. FRELINGHUYSEN. We were listening intently. First out of the box I have some questions about stockpile reductions. Madam Administrator, we are already in the process of reducing our nuclear stockpile down to New START Treaty levels. The President has stated that he wants even greater reductions, perhaps below even a thousand. Some argue that we could save billions of defense dollars by reducing the numbers of nuclear weapons significantly.

They've also questioned why we would spend all this money on weapons that we'll never use. While I disagree with this view, I'd like to hear your views as to where you think we're going with this size of the nuclear stockpile. Some are suggesting we could have dramatic savings but in reality as you said you need to deliver on a mission. How are we going to deliver on that mission and are there, perhaps, some cost savings in the offing?

Ms. MILLER. Thank you, Mr. Chairman. As the President said in Seoul at the Nuclear Securities Summit last year, even as we have more work to do we can already say with confidence that we have more nuclear weapons than we need. The President said he firmly believes that we can ensure the security of the United States and our allies and maintain that strong deterrent against any threat and still pursue further reductions in our nuclear arsenal.

So, going forward, we will continue to seek discussions with Russia on reducing not only our strategic nuclear warheads but also tactical and warheads in reserve.

Do you want to add anything to that Don?

Mr. COOK. No, I think that's fine.

Mr. FRELINGHUYSEN. Dr. Cook, jump in. I do think, you know, there is sort of a drumbeat here that we're going to be reducing the stockpiles. I think we recognize that that's perhaps something we need to do. We obviously have a responsibility to work with our allies to provide for a nuclear deterrent since they're spending a lot less on their own defense. To some extent we're doing it for them.

There is this sort of view here that stockpile reductions, you know, are going to save money. Are the reductions the President is talking about that are generally described here going to save us money in the final analysis?

Mr. COOK. I'd answer the question directly by saying not much. The objective of the President has been to reduce in concert with other nations the number of nuclear weapons on the face of the earth. It's not principally been driven by cost.

We recognize we have sizeable fixed costs across the nation security complex. Their variable costs are much smaller, so not much savings will be achieved but very important steps forward in improving the safety and security of our nuclear weapons as we modernize the weapons and we modernize appropriate parts of the infrastructure will in the long-term save money because we'll have more efficient applications.

Mr. FRELINGHUYSEN. Yes. Don't take my questions in an adversarial way. I think this is sort of the essential, one of the essential questions of our time here. And I don't mean it in any adversarial way.

Ms. MILLER. Not at all.

Mr. FRELINGHUYSEN. There is a view here that somehow going small is going to make the endeavor less expensive. As a matter of fact, we're depending on you to do all sorts of things to be able to certify to the Secretary of Energy, to certify to the President, that our nuclear stockpile is absolutely reliable. But there's sort of a drumbeat out there.

Ms. MILLER. Right.

Mr. FRELINGHUYSEN. That somehow going small and you have, you know, all sorts of labs that are working in this area which you've adequately described to us. Do you want to add anything additional to that?

Ms. MILLER. So, I would just add to that, to what Dr. Cook has said, we face as you know large investments needs to recapitalize this infrastructure. So, supporting the stockpile is certainly one aspect of what we spend money on. And the larger the stockpile over time, there's a lot that has to get done. And with money having pretty tightly over the last 10-15 years in this area, we have, in fact, not done the infrastructure recapitalization that supports any size stockpile. And not only the stockpile but the other nuclear security programs that you know of.

Mr. FRELINGHUYSEN. Yes.

Ms. MILLER. So, in fact, the dollar spent on a warhead is not a dollar spent only on warhead. We're also spending it on the infrastructure and those requirements are going to be there.

Mr. FRELINGHUYSEN. Well, are there new costs with going small?

Mr. COOK. There might be. In terms of the New START requirements to get the warhead numbers down, there are additional costs in dismantlement. But we've had those structured into our program for a long time. There are not substantial additional costs in going small but there are not substantial savings either.

Let me just emphasize that the majority of the costs that we pay are for people and retaining a very talented workforce, capable, well-trained as we must, we're dealing with nuclear weapons, particularly after underground testing stopped 20 years ago, that's essential. That's the major part of the costs that I have. Not that—

Mr. FRELINGHUYSEN. I'm glad you're making a case because I do think it adds weight to those who somehow think that our obligations are going to get less expensive. As a matter of fact, they're perhaps getting more expensive.

Mr. COOK. It's a factual case. I might say that there's hope that costs would be saved if the numbers went smaller but I don't see much weight—

Mr. FRELINGHUYSEN. And you have, obviously, the issue we've discussed here over the years in your institutional memory, you have some remarkable people—

Ms. MILLER. Yes.

Mr. COOK. Right.

Mr. FRELINGHUYSEN [continuing]. That have been part of the fabric of these laboratories, each with a special mission. And we need

to recognize that we can't reinvent these people and the talents and knowledge that they have.

Well, thank you both. Ms. Kaptur.

Ms. KAPTUR. Thank you, Mr. Chairman, and thank you for your testimony, Administrator Miller. Let me direct my first set of questions to programmatic changes that you face as a Department since the nuclear posture review.

And Dr. Cook, my first set of questions will come to you. As a result of the Budget Control Act, we are faced with severe budget restrictions in the defense accounts. And these restrictions may require changes in the way the administration was proposing to maintain the stockpile and invest in modernizing the infrastructure. You've already delayed construction of the CMRR-Nuclear Facility for five years, and I have three related questions to you.

First of all, can you explain what has changed for modernization since the Nuclear Posture Review, including how the cost growth associated with the B61 LEP and the Uranium Processing Facility is impacting your plans. And related to that, what do you believe the infrastructure and stockpile will look like in 10 years, 20 years, looking down the road, and how is that different from when the Nuclear Posture Review was released? And finally, are the changes driven by budget constraints or is your understanding of the work to be accomplished evolving?

Mr. COOK. Those are very good questions and quite a set of them, so I'll try to speak to them directly.

First, with regard to what has changed in terms of cost estimates since the Nuclear Posture Review report was released, we have engaged in a thorough analysis of what's required to extend the life of the oldest weapon we have in the deterrent, and that is the B61. There are elements of that weapon that are 40 years old, a lot that are 30 years old, fewer that are 20 years old. And in fact, as we have looked across the deterrent, just for a more general remark, and we have come down in numbers and we will go further in New Start, we have today the oldest stockpile this nation has ever had. And it is a sobering thought to know that we right now have the smallest stockpile since the days of the Eisenhower administration. If you look at the year it was 1957.

The combination of those two means we have no choice but to modernize the stockpile, and that also requires an appropriately modernized infrastructure. What we were faced with in the latter part of Fiscal Year 2011 and Fiscal Year 2012 as things shaped up were budget reductions from the president's request on top of that. And so right to the point, we had increased knowledge of the difficulty of the B61 life extension because we had gone through the early phase of that, the 6-1 study and good parts of the 6-2 study. We had done additional work on the uranium processing facility and on the CMRR-Nuclear Facility. Those were three big cost items and we recognized we had insufficient budget to do all three in parallel.

So we had to choose two. We thought we could manage two, and we still believe we can manage two. There was little question that one of those had to be the B61. We would either do appropriate modernization or prepare to take it out of the stockpile. When it came to uranium versus plutonium, uranium today on these

shelves are made in 92-12. And that is an old facility. It represents the highest operational risk—not a safety risk—the highest operational risk to failure in our program. When we looked at plutonium, we make pits in PF-4 and CMRR-Nuclear Facility, the capabilities in that will eventually allow us to get the build rate of pits up.

So based on the logic and based on where we were, we proceeded with the B61 and with UPF. We took a deferral for a number of years on CMRR. And as Acting Administrator Miller has said, we are looking at improving our ideas as we go and as we learn more.

I gave a fairly broad-brush answer but those things have changed since the UPF. If you would like to ask any follow up, please do. Otherwise, I will go on to other parts of your question.

Ms. KAPTUR. All right.

Mr. COOK. So with regard to the Nuclear Weapon Complex now and the stockpile, again, as Administrator Miller mentioned, we are firmly connected with the Department of Defense. And that means through the Nuclear Weapon Council, U.S. Strategic Command, the Air Force, the Navy, the civilians in DoD, and NSA all working together. Additionally, over the last year we have been intensively working with OSD's cost analysis and program evaluation group. Cost analysis has been the focus of the program. And so another thing that has changed is we are improving the formality with which we do business. We are taking aspects of system engineering into the program planning, both for facilities and for weapon projects. We are increasing the formality of the cost evaluation and we are constraining our appetite by attempting to achieve a stable workload across the labs and plants that is also sustainable.

I will let you follow up with additional questions if you have any.

Ms. KAPTUR. Could you be a little more specific on the infrastructure 10, 20 years out? What is in your own mind given, your tremendous background?

Mr. COOK. Sure. Let me pick first the 20 years out and then try to come back to the 10.

By 20 years out we should have in place the uranium capability. UPF by that time will be fully constructed. We will have in place the plutonium capability that we need for the long term, and 20 years out we will have gone through the W76 life extension, the B61 life extension which will have been the first production unit in 2019. We will have parts of the interoperable systems for life extension of the W78 and W88 in place. We will not be done with life extensions because they are really here to stay and I will say forever. We do not have a new need for new weapons, new military capabilities, and there is not currently a need for any satisfaction of any new military requirements.

Ten years out we will have part of those life extensions done, but we will have completed now, in a matter of less than five years, the high explosive pressing facility at Pantex. That was a significant bottleneck to our life extensions. You do not hear much about that because the work is being done competently, it is on schedule, it is meeting cost objectives, but yet not being able to brew high explosives for weapon systems would be a real constraint.

The Kansas City site has been rebuilt. KCRIMS is in place. The move is occurring this year. Certainly you have heard some things

about that. That move will be completed within 24 months, all aspects of it, and in parallel will continue to maintain the weapons and do the life extension programs.

So that deals with all nonnuclear components. Other things like NIF, DAHRT, Z, Omega, the experimental facilities put in place under stockpile stewardship were a substantial part of the modernization effort but begun long ago. The focus we have now is on improving the manufacturing capabilities that we need, and we will improve them on the timescale required for the weapon system refurbishments and life extensions.

Ms. KAPTUR. I think my time has expired.

Mr. FRELINGHUYSEN. Thank you, Ms. Kaptur.

Mr. Simpson.

Mr. SIMPSON. Thank you, Mr. Chairman. And welcome on this Valentine's Day. It is nice to have you here today and thank you for the briefing that we had. I appreciate it very much.

First, a parochial question. I understand that there is a Mission Execution Council (MEC) that helps NNSA develop strategy and plans. I am told that the current council includes three weapons labs plus Oakridge and PNNL. As you know, the Idaho National Lab does a considerable amount of national security and non-proliferation work, and some of the folks in Idaho think their participation in the MEC would benefit the council. Could you take a look into that and get back to me on whether you think that would be beneficial or not?

Ms. MILLER. I certainly will. It would be my pleasure, Mr. Simpson.

Mr. SIMPSON. Last summer the GAO submitted a report to the Senate Energy and Water Subcommittee entitled "NNSA's review of budget estimates and decisions on resource tradeoffs need strengthening." It found that the NNSA does not thoroughly review budget estimates before it incorporates them into its proposed annual budgets and instead relies on informal, undocumented reviews of such estimates and its own budget validation review process for assessing budget estimates. I understand that neither of these processes adheres to the Department of Energy's Order 130.1 which defines departmental provisions for the thoroughness, timing, and documentation of budget review. There seems to be some confusion between NNSA and DoE as to whether NNSA is required to follow Order 130.1.

Can you give us an update on this situation and whether that issue has been resolved? And also what steps NNSA is taking to adhere to the rest of the GAO recommendations in this report?

Ms. MILLER. Thank you, Mr. Simpson. It is actually my pleasure, as the former director of DoE's Budget Office, to answer this question. I will forever count myself among the budget weenies of the world.

I will tell you that, without speaking directly to orders or not to orders, the NNSA when it was founded was directed to develop a five-year funding profile along the lines the Department of Defense does. We call it the Future Years Nuclear Security Program. And it is the only organization in the Department of Energy that has that as a requirement and has made strides in doing so. Having said that, we, without question, have not gone through what needs

to be done every year to, in fact, develop a five-year budget. And not surprisingly, I had concerns coming into the NNSA on how could we do this to better serve the people in the programs so that the budget planning and programming process becomes something that we actually can rely on from year to year and that makes sense to our people and to you.

To this end, we have seriously restructured how we are both formulating the budget; what the programming portion of what we all do looks like. We are in the process of establishing an independent analytical arm to serve the administrator, similar to program evaluation at Department of Defense on a much smaller scale. We are a much smaller place. But so that decisions on what we do and what we spend money on are not all—all those decisions do not occur at the lowest level with very little left to do when you are up at the top trying to make decisions. When you get to the top part of it you should not just be looking at two or three or five million dollar moves. At that point you are not affecting the programming and the priorities of the agency at that point, at that level.

So we have taken a lot of steps to restructure how we do this. This year we had for the first time two front-end assessment teams take a look at both near-term and longer-term bigger issues for the NNSA. In one case we had—and this is across the NNSA team—so again, with an eye toward what does the agency's programming and planning need to look like, not just everybody's individual little piece of it. We had two teams—one looking at science and technology across the enterprise going out 5 and 10 years. What are our needs, similar to Ms. Kaptur's question about the infrastructure. And we had another team looking at our programs related to Russia. Again, across the NNSA because, in fact, these programs cross NNSA. And we are using the recommendations of those teams. In fact, those teams are continuing to work into the next year. And as we are maturing the budget processes and the programming and planning processes we are able to incorporate this into where we expect to go in 2015.

Here probably it is a good place to mention that this year, in developing the Fiscal Year 2014 budget, we undertook—we, the Department of Defense in partnership—an unprecedented look across and deep into the needs of this enterprise both now and in the future to sustain it. What is it going to take and why? One thing that we typically have not understood well in the NNSA and at the Department of Energy I would argue is the cost of things. We understand budgets but not necessarily cost, and that has a long history to it. I am happy to tell you that offline sometime as you can imagine. But I think it is something that all of us have come to understand as we are required to plan and program these activities in a way we never had to throughout the Cold War as an example. We have to understand our costs as well as our budget requirements.

So this effort, which I co-led with Ms. Christine Fox, the director of the DoD-CAPE, brought together her staffs, my staffs, people across both agencies, and I would say was at times exhilarating, at times painful, at times frustrating. She and I were climbing up and down through every laboratory and facility that we have. Ms. Fox is the former head of the Center for Naval Analysis. She well

understands FFRDCs and what it takes to make them healthy and how they can operate in an effective way. And I would say that without going anywhere near Fiscal Year 2014 proposals, this yielded information and understanding that is going to be invaluable to all of us going forward, and I expect that that joint effort will continue.

Mr. SIMPSON. I do not know of anybody in Congress that thinks sequestration is a good idea. You mentioned it in your opening statement. Could you tell me what the impacts, specifically on your department, are going to be if sequestration takes effect? What you anticipate those to be, and will we be able to meet our desire to dismantle warheads and so forth? What is going to happen to that?

Ms. MILLER. Yes. I think all of us share deep concern, particularly those of us in the national security arenas, share deep concern at the prospect of sequestration and what it will do to our programs and our people. I will give you happily a few broader descriptions. We will submit for the record—I think we have already submitted for the record—a more detailed explanation of that. But as examples, sites will use a combination of layoffs, furloughs, hiring freezes. The worst case is approximately 650 layoffs on the federal side. Sites will significantly reduce—

Mr. SIMPSON. Six hundred fifty out of how many?

Ms. MILLER. I am sorry, on the contractor's side.

Mr. SIMPSON. Okay.

Ms. MILLER. Sites will significantly reduce travel, some procurements, support contracts. We will bring carryover down to about 4 percent which in a large organization like ours is a dangerous level to be carrying forward. We will ensure that there is no impact on the continuing life extension of the W76. We must deliver that for national security reasons, but there will be delays to the B61 life extension schedule and the W88 ALT schedule. We will—reductions across the board will include reductions to surveillance of the stockpile, to pulse power and reuse experiments. The plutonium facility for it at Los Alamos that Dr. Cook referred to is currently going through safety upgrades in response to seismic concerns that we have. These will be delayed. There is a potential delay in the vault cleanout at PF4. And we will shut down SCI computing. So this is just a sample of what we're looking at.

But I think the point I would like to make very strongly here is I think people have the notion that like a government shutdown it might last for a couple of days and you go back up again and it takes a little bit of time to recover but essentially it recovers. When you do this kind of disruption to programs and projects and to the work people are doing every day, this does not recover so fast. The kind of cuts we will have to put across the board will cost more, far more in the end. We will lose people permanently because of the uncertainty.

Mr. FRELINGHUYSEN. I may jump in here. We are going to explore that further. I want to make sure I get to Mr. Visclosky. But I thank Mr. Simpson.

Mr. Visclosky.

Mr. VISCLOSKY. Thank you, Mr. Chairman. Thank the witnesses and thank you and Ms. Kaptur for your kind words. I have been

on the subcommittee for some period of time and the service has spanned two centuries. I will make a couple of observations.

In the last century—

Mr. FRELINGHUYSEN. You look good.

Mr. VISCLOSKY. Thanks.

I was standing in the mud in the state of California in a project called the National Ignition Facility, and I was told at that time that it was under budget and on time. Most recently, the original schedule called for ignition in 2010, and that date was subsequent to September of 2012. In December of 2012, the GAO reported that they could not verify performance on a third of the non-major projects being managed by NNSA and the Office of Environmental Management in the last four years because NNSA did not follow DoE requirements to document performance targets.

The National Academy of Public Administration concluded that privatization and higher award fees were not successful in improving laboratory performance because fees have been largely awarded in full. The DoE inspector general identified unresolved questions and potentially unallowable costs incurred by Los Alamos National Laboratory during Fiscal Year 2010, including more than \$434 million in previously reported unresolved costs from 2007 to 2009. The GAO found that NNSA is unable to determine how much it costs to operate and maintain its infrastructure, and that the true costs significantly exceed the amount of the budget request. The subcommittee has in the past attempted to add transparency to this issue.

I have been on this subcommittee for a long time. I have had this hearing year after year after year. What is going on and why do these reports endlessly year after year after year come back? People work hard for that money. We are talking hundreds of millions of dollars.

In brief, because I do have another question.

Ms. MILLER. Absolutely.

Mr. VISCLOSKY. And I know there are other members waiting.

Ms. MILLER. Absolutely.

Mr. VISCLOSKY. I am grievously upset. Grievously upset. And I must tell you, ashamed of myself. I have done my best. I have had terrific leadership. Mr. Frelinghuysen, Mr. Hobson, great members of this subcommittee. And it is abject failure that nothing has changed.

Ms. MILLER. I believe, Mr. Visclosky, things are changing, but I recognize that it is going to take more than a few months or even a year or a couple of years of changing for us to be able to address the depth of concern that you show. And I understand that concern very much.

I would like to start by saying that our system—and that system is beyond the NNSA and is pretty much throughout the Department of Energy—comes from a time where cost was not really a concern. There was a period of our history, long before you were on this committee, when the job of delivering nuclear defense was a job everybody took seriously, but it was something we were inventing as we went along. It was something that we were struggling to deliver but deliver we did. Invent we did. And in a given year we spent our time concerned with achieving that and less with

I would argue understanding the cost of things because of the imperative to deliver during the Cold War.

So you might rightly ask—it has been a long time since the end of the Cold War—what gives? In my judgment, we need to have in place systems and processes to understand the costs of our laboratories and plants that you do not put into place overnight but which are now being put into place that will allow us—and are beginning to allow us—to understand better as you said why do things cost this? How do we control that?

Mr. VISCLOSKY. I appreciate that. And again, I know my colleagues have questions.

I could be off by a year but I began service on this committee about 1993. That is two decades ago. You are right. The Cold War ended two decades ago.

Ms. MILLER. Yes.

Mr. VISCLOSKY. People have been working on this for 20 years. Three administrations. Both political parties. And we are still talking about when we are going to get started. I mean, I have got a whole list of projects, major construction projects, billions of dollars burned up in a hole in the ground. And I am having the same hearing I have had for 15, 20 years. I am just beside myself.

Just, if I could, Mr. Chairman—

Mr. FRELINGHUYSEN. I share your feeling. I mean, the last time I was out at NIF it was not working, so it seemed full of problems.

Mr. Visclosky, if you could just in a minute yield.

Mr. VISCLOSKY. I will defer.

Mr. FRELINGHUYSEN. Thank you. Okay.

Excuse me. Mr. Nunnelee. Thanks for your patience.

Mr. NUNNELEE. Sure. Thank you. Thank you, Mr. Chairman. Madame Administrator, thank you, as others have expressed for the opportunity we had yesterday.

It does appear that we are living in an environment of budget cuts and sequestration. And the results of those are that—it is all about prioritization. So what would you say would be the top five priorities of the Weapons Activities Account?

Ms. MILLER. I would like to ask Dr. Cook to speak.

Mr. COOK. I appreciate the question and the answer is probably not a surprise but I will list the several that are in the top five group.

The first is having a capable workforce, so it is all about the people. Without people we do not improve weapon systems. We do not even maintain them. So they are first.

Second is having a set of work practices that ensure that safety and security are at the top of the requirement list. So a group of well-trained people operating well within the boundary that they need to operate.

Thirdly is applying that to the stockpile. As we have said, maintaining a safe, secure, and effective nuclear stockpile. That is where it starts to get a bit more complex. So a key aspect of that is having recovered from underfunding of the surveillance program and having maintained that at a higher level for a couple of years now we have got much greater insight into the condition of these weapons that I have already said have an average age of 26 years

and we have never had a stockpile that old. So the surveillance in the annual assessment are in the top category as well.

Adjoined to that are making the stockpile improvements that we need to make. Our principal focus is on improvement of safety and improvement of security. We retain the weapons at a reliable state. We must and will continue to do so. But we know how to improve safety and security and we have had about three decades where those elements have not been the focus; not because they were not needed but because we were not doing life extension programs for the last two decades, save the W76. Now we are doing them for the 61 and 76, the 78, and the 88.

And the last item I would give just to round out your request for five is the infrastructure. Without an infrastructure and attention to it which has to be ongoing—you know, if we have a reduction in funding that we have to take we do not just preserve the people or preserve the stockpile. We also have to preserve relevant elements of the infrastructure.

Mr. NUNNELEE. It would be helpful to be able to ask the question in the present tense, but I guess the status of the tense is above your and my pay grade so I will just ask it in a future tense. Will your budget request reflect those five priorities?

Ms. MILLER. Yes, it certainly will.

Mr. NUNNELEE. Thank you, Mr. Chairman.

Mr. FRELINGHUYSEN. Thank you, Mr. Nunnelee.

Mr. Fattah.

Mr. FATTAH. Thank you, Mr. Chairman.

So the bottom line here really is not the cost. The bottom line here is that you certify to the president each and every year that our deterrent is operational and in place to secure our nation. Right? And you have done that for decades. This agency has done a lot of work. I have been out to see a lot of the work that is being done by the thousands and thousands of people engaged in the nuclear weapons enterprise. I have been to Los Alamos and Sandia and was out to Y-2 and Oakridge and to see the Secure Transportation Network. I think some of the frustration expressed by my colleague is not that we do not want to fund what is needed, but we do need to have a better understanding of the cost so that we can program appropriations. I do not believe on either side of the aisle that there is any desire to do anything less than what we need to do to defend our country and that the nuclear weapons enterprise is our singular deterrent against having something other than a Cold War. And so there are people who have been engaged in this for a long period of time.

You said that the personnel is the most important part of this, Dr. Cook. I am very interested in the critical skills shortage that will emerge over the next 20 years in this activity. You have got thousands of people, literally tens of thousands of people, all of whom have to be American citizens and many of whom need terminal degrees in the hard sciences. I am wondering about the pipeline to make sure that we can replenish our workforce because whether your are looking at modernization or life extension or pit development, all of these issues relate at the end of the day to having capable people. And as we talk about salary freezes and other issues, I note that for some of the people we have attempted to re-

cruit, we are not always seen as the ideal choice when compared to some of the other options that these individuals have. So I am worried about how you do the nonproliferation work, the modernization work, and how you see this workforce issue over the short term and long term as we see a large percentage of the workforce is moving towards retirement age.

Mr. COOK. Maybe I can give an initial comment and then my colleagues can comment further.

The point I would say right at the beginning is we know this is a very important issue. It is likely to get worse. As the economy picks up more, there will be more challenge for the people we have at our labs and plants to go into other parts of the economy. It is also not only about Ph.Ds. and science. We have entered—this is present tense—an era in which we are touching weapons. We are dismantling them. We are putting 76s on schedule and on cost into the Navy's hands these days. And so the recruitment of technologists who are very well trained is essential, too. I'll address them quickly.

In terms of technologists, since I mentioned them, Y-12 actually has a trainee program for apprentices, something really important when you—you saw that. I am pleased that you were able to go down to the site. Apprentice programs like Y-12 generally do exist in the plants, and I do not want to neglect those. In the scientific arena we hire people who are capable of becoming nuclear weapon engineers and scientists, but we do not train people in nuclear weapons in our universities. Thank goodness we do not do that. But that means that we need to retain people really for three, four, five years in early career and not lose them or that training investment is really lost. Sometimes attention to detail is very important.

I think I will stop there and see whether my colleagues wish to make a comment. Maybe Colonel Dawkins does because he has seen people on the flight lines, very important in the enterprise.

Mr. DAWKINS. Well, I am in my—starting my fourth week here, so I am about an inch deep in a lot of these issues. However, what I can tell you is what I've seen over the past 20 plus years because I have been involved in training on all of these weapons whether it is 61 and all modifications of it or the B83 or Alcman. In my previous job as a wing commander at Minot Air Force Base, I had a lot of young 18 to 26-year-old airmen—that includes women as well. They were working on nuclear weapons, protecting nuclear weapons. And then, of course, we had the crews that were trained to fly with nuclear weapons if the President called.

Our concern that I had as a wing commander and also a bigger Air Force concern is that we maintain that great base of folks who were educated in how to deal with this special capability that we were custodians of. So that took a lot of our time to make sure that we had the right folks trained as well. And as a similar issue I think that we're experiencing on the civilian side of this enterprise, to make that we have the right folks in the pipeline getting the right level of training because it requires perfection. Every bit of this requires perfection. There is zero tolerance for mistakes when you are dealing with nuclear weapons, and that is the way we took it in the military. Thank you.

Mr. FATTAH. Do I have time for one more question or not?

Mr. FRELINGHUYSEN. You do not, especially since I failed to recognize Mr. Fleischmann who arrived here quite early and I should have done that in short order. I do apologize and we will start invoking your interests all along here and you have not had a chance to put your oar in the water. So Mr. Fleischmann, you are recognized.

Mr. FLEISCHMANN. Thank you, Mr. Chairman. I appreciate the kind words for the little city in Tennessee I represent called Oak Ridge. And it is an honor and privilege to serve with you all.

Madame Administrator, Dr. Cook, and Colonel Dawkins, thank you all for being here today. As you all know, I do represent Oak Ridge, and I want to thank you for your hard work in that area.

For the last six months, the community in Oak Ridge has had a hard time in light of the Y-12 security breach, but I have been there on the ground. Members of our Congressional Delegation have been there. I understand substantial improvements have been made and progress has been made. Would you articulate for the Committee some of those improvements and success stories, please?

Ms. MILLER. Thank you. Thank you, Mr. Fleischmann. And in a difficult situation, I will tell you I am pleased to be able to tell you that improvements that we have made, starting with taking a much more aggressive hands-on approach to security.

As you know, in the aftermath of the incident in July, Administrator Tom D'Agostino asked General Sandra Finan who was serving with us on rotation under Dr. Cook from the Air Force, but who had a background or has a background as a former Inspector General with the Air Force and a strong security understanding, to undertake a review of security not only at Y-12, but across the NNSA. And the results of that and there have been other reviews that both we and the Secretary of Energy have had done. But in particular I will tell you as a result of General Finan's review and as a result of her leadership—she took over the security office shortly after she finished the review for the remaining time she had with the NNSA—she helped us develop what I would say is a much more rational and workable approach to security at our sites across the complex. And this is how it works:

We continue to set policy in the organization that is in charge of security for the NNSA headquarters office charged with setting policy, charged with doing the assessment of the performance of those sites, and implementing that policy.

However, I mentioned earlier the establishment of the Office of Infrastructure and Operations to which all of the sites now report directly to me is charged with implementing that policy and implementing it consistently across the enterprise. One of the problems we have had is the flip side of every site being unique is every site uniquely implementing policy, which really does not work as a defensible approach to security and many other things. So this is a means by which we can hold people in the line accountable for implementing the policies that the security experts are setting. So I use that as my major example to you of how things have changed.

Mr. FLEISCHMANN. Thank you. There have been some reports, rather alarming reports, about delaying the modernization of our weapons complex, and I want to thank you all for your commitment

to the UPF. But I guess this is a two-part question, and I want to be as specific as I can. I just wanted to make sure that NNSA has not retreated in any way from its schedule on UPF and secondly, when might we look forward to some type of a groundbreaking in that regard?

Ms. MILLER. I will just make an initial statement. We definitely have not retreated from the commitment, particularly across the complex on modernizing this infrastructure, particularly that uranium capability. Anyone who has been to 9212 from the top to the very bottom knows that must remain a top priority for us. It is just unacceptable to continue that over the long term.

And with regard to groundbreaking, I will let Dr. Cook talk to that.

Mr. COOK. Sure. Good question. I am not certain when we would have the groundbreaking, but what I am certain of is the commitment remains. The first phase of what we must do is move the capabilities from 9212 into UPF. We still plan to begin that move in 2019, so that is just six years from now. Lots of work still needs to be done. We have some early infrastructure projects. There is a movement of the Bear Creek Road. We will be proceeding with site readiness. There is further site infrastructure and in order to manage the kinds of things that Mr. Visclosky brought up, our focus we can proceed because they are at 100 percent of design and we are ready to go. We know the costing.

Back on the same issue and pertinent to Y-12, we will not set the baseline of any major capital project until we are at 90 percent of full-scale engineering design. We said that a few years ago under Administrator D'Agostino and Acting Administrator Miller. That stance has been retained. So certainly our hope is that we will have fewer instances where projects after baselining increase costs without a commensurate reduction of scope. Sometimes that is a very hard thing to do, but if the cost grows, we can reduce the scope and often we will need to do that. So we formalized those projects—I just wanted to answer part of your concern earlier and then suggest that you track us on this.

So don't know the time of groundbreaking, but the commitment remains and we will shortly begin one of the infrastructure projects.

Mr. FLEISCHMANN. A really quick follow up. If it is a condition perceived to be at 90 percent engineering design before we break ground, when do we anticipate we will be at 90 percent of design?

Mr. COOK. My rough guess is it will be somewhere near the end of this calendar year, so around December of '13. It might be January 14, but it is around that time.

Ms. MILLER. Sometime in early- to mid-'14.

Mr. FLEISCHMANN. Chairman, how is my time?

Mr. FRELINGHUYSEN. About over.

Mr. FLEISCHMANN. Okay, sir.

Mr. FRELINGHUYSEN. But your enthusiasm is noted.

Mr. FLEISCHMANN. Thank you.

Mr. FRELINGHUYSEN. I don't want to stand between you and the judge, so Judge Carter, welcome to the Committee.

Mr. CARTER. Thank you, Mr. Chairman. I am sorry I was late. I was visiting the National Cyber Security and Communications Center and we got caught in traffic. I apologize.

Mr. FRELINGHUYSEN. You are a chairman of a very important Subcommittee relative to Homeland Security. You are welcomed to this committee. And as the expression goes, we never mess with Texas.

Mr. CARTER. Do not try. Okay, well thank you, sir.

Dr. Cook, you just a few moments ago said that the W76 program was on schedule and on cost. Navy officials have testified that they are already worried about the production plans because there is almost no margin of error in the schedule. I have a series of questions here.

If the per-unit cost cannot be reduced further, what is your contingency strategy for meeting the commitments to the Navy?

Will you identify other funding to make the original schedule or will the NNSA be forced to stretch out production scheduled?

Is there a potential for any major change in the production needs for W76 LEP in the next few years?

And have any major policy changes occurred that could change these requirements?

Mr. COOK. Once again some good questions. I will try to answer them briefly and quickly.

No major policy changes have occurred.

The early life defects that we had, someone would say early failures that occur at the beginning of a program, were significant ones in the W76. It was the first life extension undertaken in 20 years. We are at this point in my belief through that, and so what we went through in fiscal year '11 with those defects was resolving them, really understanding then resolving them.

In fiscal year '12 we moved up the production rate and at the same time, given the budgetary challenges, we also decided that we wanted to stretch the program a bit, maintain a somewhat lower rate about two-thirds of where we were headed, because that was going to be sustainable. We did not want to go up and come down. That really can hurt a program.

We have now met that sustained level. We delivered all of the warheads to the Navy that were required in fiscal year '12. We are on track to deliver all the warheads in '13 and, in fact, we will produce more warheads in this fiscal year, '13, then we need to deliver to the Navy. So we are building ahead.

Mr. CARTER. So you can kind of allay their concerns.

Mr. COOK. Right. My good colleague—

Mr. CARTER. As we move on to wrestle with the CR and a sequester, is that going to have any effect on the production schedule on this program and the things that will need to be delivered to the Navy?

Mr. COOK. Not for the 76. As Administrator Miller already mentioned that in the event of sequestration, we will choose—and we will look forward to your support in this regard in the Appropriations Committee—will choose to take the impact in other areas, but protect the 76 since we are now at the full level of Belgrade. We are producing and if we can maintain that rate, we will absolutely manage the cost and the schedule best.

Mr. CARTER. That is good news and what I wanted to hear. Do I have time for another question, Mr. Chairman?

Mr. FRELINGHUYSEN. I just want to put my oar in the water here, but the administrator stated, relative to Pantex and in response to Mr. Simpson's question about the sequester, you stated and correct me if I am wrong, that 20 percent of Pantex's production staff would be reduced. Did you not say that?

Ms. MILLER. I did not. It may be in—no, it was definitely not in anything that I have said today. But I have to say that maintaining the 76 does depend on our ability to reprogram our funds. And to Dr. Cook's point about what we will choose to do—

Mr. FRELINGHUYSEN. So nothing that is happening in the sequester is going to affect staff reductions? In fact, I took some notes.

Ms. MILLER. Pantex could be affected, but I did not mention a figure of 20 percent.

Mr. COOK. The devil is in the details as Rickover said. He also said and so is the salvation.

Mr. FRELINGHUYSEN. We always love it when people invoke Admiral Rickover, but that does not get to my question.

Mr. COOK. So here is—

Mr. FRELINGHUYSEN. No one is going to stand up against Admiral Rickover and his reputation and what he means to this enterprise. God only knows, we would never do that. But I think—Judge Carter has asked some questions here, and we are sort of wondering whether there is—what is the sequester going to do relative to Pantex? Is it going to be a 20 percent reduction in their production staff? And if that was stated actually for the record, it would have a corresponding effect on your deliverables.

Ms. MILLER. I actually have an answer.

Mr. FRELINGHUYSEN. Okay, you have an answer?

Ms. MILLER. Yes, I do, and I apologize for the delay. This is why I want to emphasize our ability to reprogram. Pantex and Y-12 could face delays of up to 20 percent if we are unable to reprogram that money as Dr. Cook indicated to continue the support of the 76.

Mr. COOK. In other words we have already established some priorities that we are going to act on. We will protect the 76. There are many activities at Pantex, and some of those would be slowed. But it will be essential in this process if sequestration occurs that we have a very fast and streamlined approach to reprogramming because reprogrammings are always tough. They are almost always delayed.

Mr. FRELINGHUYSEN. I think I may have taken—thank you for yielding, Judge Carter. I think the clarification is important. I know we started down this sequester road and some figures were mentioned. And obviously there can be some major—

Mr. CARTER. And I thank you, Mr. Chairman, because that slowdown would affect the Navy's concern. If we stay operating as we are today, your answer is one we can share with the Navy?

Mr. COOK. Absolutely. We went through a period where we used up margin. We were concerned about that. The Navy was concerned about that. We are beyond that point with 76, and we are now going to build margin in in terms of completing assemblies, having them ready for shipping, to meet the full set of Navy requirements.

Additionally, NNSA and the Navy have worked even more closely together to understand the boat load out schedules and all things that are pertinent.

Mr. CARTER. And the answer to the next question I want to ask may be contained in what we want you to discuss. As you know, we recently completed dismantling the B53 bomb, the oldest weapon in America's arsenal and the largest in U.S. history. It was challenging and there were significant controls that had to be in place before it could be safely dismantled. This program was ultimately completed without incident, thank God. However, recently safety concerns have been raised by Energy's Inspector General for the safety dismantlement at Pantex. Knowing the large number of weapons that are planned to be dismantled over the next few years, what is NNSA doing to ensure that weapons dismantlement are performed safely and are you addressing this IG concern?

Mr. COOK. Let us address this in two parts, first a bit of history and then to Administrator Miller.

In the latter part of the last decade, we began working strongly to ensure that we had modern approaches for dismantlements and for assemblies, and we invested quite a bit of money in tooling. Because we did that at the right time, then you have seen a series of dismantlements that have actually been achieved under schedule and ahead of budget with very good safety practices. The W62 was the first of those. The B53, as you mentioned sir, was the second. And we have dismantled a very substantial number of the W80-0s. So that, what we called safe systems for the 21st century, now allow us at Pantex group to disassemble or assemble any weapon in the stockpile whether deployed or inactive. And in general they are doing that very well. There have been some increased concerns, and I will let Administrator Miller address those.

Ms. MILLER. Thank you, Don. I would just like to add that safety, like security, is something we always say underpins everything we do. And for the vast majority of the people involved in our enterprise and all of the sites, safety is absolutely foremost in people's minds. But it is very important to us to make sure that that commitment is consistently applied across the sites and that it has full management attention. Again, a reason why we wanted to make sure we had a structure in place and the right people in place to hold those sites accountable for that consistent attention and application of safety as well as security.

Mr. CARTER. Well, this DOE report—

Mr. FRELINGHUYSEN. Excuse me, Judge Carter, could you wrap up a little bit?

Mr. CARTER. I just wanted an answer. Are you addressing or have you addressed the issues that DOE raised in the IG report?

Ms. MILLER. Yes, we are addressing them aggressively.

Mr. CARTER. Thank you.

Mr. FRELINGHUYSEN. I just want to clarify. In your written statement, you referred to a 20 percent reduction for Pantex, not in your oral statement. That's the benefit—

Ms. MILLER. And I apologize for that.

Mr. FRELINGHUYSEN. Yeah. I just want to make sure we have the record straight.

I want to get back to the issue of sequestration. What actual guidance have you received from OMB on how to apply the sequestration cuts? I know that they are horrendous, and I would like to know obviously how it relates to the whole issue of formality that Dr. Cook sort of raised, brought up, as well. So what guidance, what orders, what directions have you received for how to apply the sequestration cuts? In a certain way or—

Ms. MILLER. So, Mr. Chairman, thank you. As you may know on January 14th, OMB did issue guidance to the Executive Branch agencies outlining to begin with general principles that agencies should adhere to in planning for the possibility of sequestration. So we are following that guidance and using any available flexibilities to reduce the operational risks and minimize the impacts on our core mission as we have been describing here this morning. The OMB stated in that memo that they would provide additional guidance should sequestration go into effect, but in the meantime we were directed to develop plans on how we would implement sequestration, and we have done so.

If it does go into effect, by law as we have said it will impact each of our programs and projects across the board. That is the guidance primarily that we have received up till now, although in the last day OMB has been speaking to us about the need to begin to implement by as early as next week the early stages of how we will accommodate sequestration so that we do not reach March 1st and not have anything ready to do.

Mr. FRELINGHUYSEN. Sandia and Los Alamos, representatives from there, have said—correct me if I am wrong—they have the flexibility and do not expect layoffs? Is that—

Ms. MILLER. I know that the head of Sandia has said so. The Director of Los Alamos did not take the same position. He does believe that they could well be facing furloughs there.

Mr. FRELINGHUYSEN. Yeah, I think the whole thing is horrendous quite honestly. Nobody is endorsing it and I think is totally destabilizing. I just want to make sure you are prepared. I want to ask some questions.

Ms. MILLER. Please.

Mr. FRELINGHUYSEN. The continuing resolution is a nightmare as well, something which the Committee on a bipartisan basis hates. I want to get to the impact of sequestration, how is that affected by the work you have done under the terminology that Dr. Cook uses, of these formalities? You have internal formalities that you have established, which is great. Then you have an external formality. And then you add on it sequestration. I mean is that all under the mix?

Ms. MILLER. Right. So CR and sequestration, I could talk to each of them. They are as you just pointed out connected, but they are to some degree discrete.

Mr. FRELINGHUYSEN. But the players internally—

Ms. MILLER. Are completely, completely, engaged right now, completely engaged.

Mr. FRELINGHUYSEN. Okay, absolutely, relative to both sequestration and the effects of the continuing resolution?

Ms. MILLER. Yes, absolutely, completely engaged, we in the NNSA together with the members of the Department, the CFO, leadership of the——

Mr. FRELINGHUYSEN. We are not trying to catch you out here——

Ms. MILLER. No, I am happy to have the opportunity to say it.

Mr. FRELINGHUYSEN. We had some difficulty with other agencies that we do not know.

Ms. MILLER. No, completely engaged.

Mr. FRELINGHUYSEN. Could you talk a little bit about your plans to reprogram? Are you going to have a reprogramming request?

Ms. MILLER. Yes.

Mr. COOK. Let us see, with regard to the reprogramming that is in from the money saved from CMRR Nuclear Facility, that reprogramming is still outstanding. In short, the Appropriations Committee supports that reprogramming. I appreciate your support.

Mr. FRELINGHUYSEN. The authorizers are dealing with——

Mr. COOK. The authorizers, right, we are attempting to get them briefed and attempting to get that money into Los Alamos to avoid further delays in the plutonium development.

Mr. FRELINGHUYSEN. I am talking about reprogramming that directly relates to sequestration, which I think is going to be even more severe.

Mr. COOK. So what I would—I will give you the general sense of what we would be after. In order to deliver to the Navy their greatest need on the 76, we would take other things as Administrator Miller has said into account. We would slow down—we would be required to slow down the B61 LEP. That will have further consequences. Sandia has looked at their staffing. They could accommodate that, but we would not recover that schedule. And for those kinds of things, we would ask for prompt reprogramming flexibility.

Ms. MILLER. But the specifics of a reprogramming we would not be prepared to speak to right now.

Mr. FRELINGHUYSEN. But have you been slowing down your spending?

Ms. MILLER. Well, in any event——

Mr. FRELINGHUYSEN. In anticipation of sequestration?

Ms. MILLER. In any event under the continuing resolution, we are spending at the lower—as is always the case—we are spending at the lower of the House or Senate marks for this year with the exception of the weapons activities anomaly. We have been trying to operate in anticipation of the sequestration, but without yet affecting things as a result of the sequestration. So I am trying to pick my words a little bit carefully here to say that we were not certainly going to implement sequestration ourselves before it went into effect.

Mr. FRELINGHUYSEN. Some reliance on prior-year funds?

Ms. MILLER. We do—we definitely have been spending down our prior-year funds without question.

Mr. FRELINGHUYSEN. Okay. These are important issues. Ms. Kaptur.

Ms. KAPTUR. Thank you, Mr. Chairman. I wanted to get at a little more precisely, if possible, what we could do over the next year

to get a handle on some of the incredible cost estimate increases that we witnessed in some of the programs under your purview. Congressman Visclosky started on this; I wanted to continue. If we look at the original cost estimates for the Uranium Processing Facility, Y-12 in Oak Ridge, the original estimate in 2004 was \$600 million. The latest estimate I have here is \$6.5 billion. If we look at Los Alamos and the Chemistry and Metallurgy project, the original estimate for that facility was also \$600 million. The current cost estimate is \$5.9 billion.

I have served on a lot of subcommittees in my life. Those are incredible differences. Dr. Cook, I heard what you said about us having the oldest and smallest stockpile and, therefore, we must modernize. As we are retooling weapons that were designed in the past one asks the question for the future. Are we merely retooling what existed or are we inventing anew? We do not want to harm our capabilities in any way. But I wanted to ask you over the next year, Administrator Miller and Dr. Cook and Colonel Dawkins as well, what are the cost drivers in the current system based on everything you know at this point? And what over the next year could we do to get ahold of them?

For the record I am also going to place some reports that have been done by the Department of Energy's Inspector General who recently reported there was more than \$434 million in unresolved costs at the Los Alamos National Lab from 2007 to 2009 that have been previously identified as in need of audit. I will put on the record what the National Academy of Public Administration concluded that privatization and higher award fees were not successful in improving laboratory performance because fees have been largely awarded in full.

And I will put on the record GAO in December reported they could not verify performance on a third of the non-major projects being managed by the NNSA, and NNSA did not follow DOE requirements to document performance targets.

What in the next year precisely can be done to get a handle on these exponentially rising cost estimates?

Mr. COOK. I will start out here. I think it is a great question and it comes right to the core of how we do work in the future, as well as how we did work in the past. People, whether they are dealing with projects or dealing with weapon systems or dealing with anything else, tend to be optimistic at the beginning.

I have been in this field a long time and I have not seen so many people optimistic at the end of a project. It is because they have learned. So quoting the initial cost, you know, that is done fairly loosely. I am absolutely not saying you are doing that. There has been substantial cost growth.

What we put in place is a discipline process to determine when we set the baseline for a project. After we set the baseline, then NNSA and the lab or plant is committed to delivery. And, you know, if the cost goes up from there, then we will either cut the scope, which is not often enough done, or we will justify a different way of doing the work so the cost does not go up, or we will, if we have to, accept the cost. But then there will always be consequences for doing that.

Many people have initial cost estimates and sometimes we pay way too much attention to them. It would be better if we could evolve together to say has that cost estimate been formally done, has it been audited, has there been an independent cost estimate done by either—if it is something in defense programs, outside of defense programs, within NNSA, or outside NNSA, that is the direction——

Ms. KAPTUR. Doctor, would you say that the science is not there for us? Are the cost estimates so far off because we cannot get there? Is there a scientific hurdle? What is causing these tremendous cost increases?

Mr. FRELINGHUYSEN. The administrator jump in, too. No hesitation.

Mr. COOK. Yeah, please.

Ms. MILLER. So, no, I think, not to put words in Don's mouth, but I do not think we would argue that the science is not there and so we are building without knowing what we are doing, which I think is what that equals. However, we have, as Don said, had a tendency to start building before our designs were complete, which is a fatal flaw in any construction project. Even I, a political science major, knows that.

But the tendency has been to get a project going. And so in some cases the examples that you use are the result of that. One of the reasons why I wanted to call out in my opening statement the creation of an independent acquisition in project management in the NNSA is to highlight the fact that we came to the realization very painfully over a very long period of time, too long probably, that to have the people who are driving the need continue to manage the project as it is being constructed probably would get us more change orders than we could afford and that anybody should want to pay.

In addition, I would also point out that we do all of our work, as I know you are aware, in partnership with our contractors and we work with, I would say, a full group of world-class companies as partners. We have begun to make it very clear to everybody that the world-class reputations they have developed need to be present when they work with us, as well as with their other partners. And that is behavior that we would expect should drive a different approach to managing and estimating these projects.

I would tell you, as Dr. Cook just pointed out, independent cost analysis. We have now an arrangement with the DOD Cost Analysis Group which is very specialized, as you know from your service in the Defense Committee, very specialized capability that exists almost entirely in that organization to be able to effectively estimate costs independently throughout the life of a project, to help us drive that.

But I would also just like to say that, coincidentally today, the GAO has removed the NNSA from its list of high-risk projects with the exception of the projects costing over \$750 million. Both the NNSA and the department's Environmental Management program comes off of the GAO. \$750 million are still——

Mr. FRELINGHUYSEN. The department is still on the list, but you are not?

Ms. MILLER. No, I said two programs, us and the Environmental Management program, which I helped do in another hat. But it is significant for us because we have to drive the change. We know where we have gone wrong and we have been working very hard to figure out how to get that fixed, with some success I would say.

Ms. KAPTUR. Well, I hope, for the record, Mr. Chairman, that the Department might also be forthcoming over the next year. How precisely can we try to begin to get a handle on those rising cost estimates project by project?

Mr. FRELINGHUYSEN. Well, most of your projects, thank you, Ms. Kaptur, are over \$750 million, so they are.

Ms. MILLER. Okay.

Mr. FRELINGHUYSEN. Mr. Simpson.

Mr. SIMPSON. Even though they start off less. This is an issue that the Committee has been concerned about for years and years. In fact, I remember when Mr. Hobson was chairman, our concern was that oftentimes we started construction when 10 percent of the design was done or the engineering was done.

Ms. MILLER. That is right.

Mr. SIMPSON. But when you look at the changes in cost that have occurred from an estimate of \$600 million, throwing a dart at a board could be closer than a lot of these things.

I think we are doing a better job of trying to come up with original cost estimates that are more accurate. Because it is very frustrating to this Committee, whether it is the waste isolation plant or waste treatment plant in Hanford or whether it is some of these labs, when this Committee sets in planning and looking at the future saying it is going to cost us a billion dollars to build this, and all of a sudden it is \$5 billion, that screws up our budget.

Let me ask you a little bit about sequestration again because I am curious about this. As I understand it, when sequestration goes into effect, it is an across-the-board cut in every program.

Ms. MILLER. That is correct.

Mr. COOK. Yes.

Mr. SIMPSON. The only way you can change that to address the priorities that you have and not affect them as much as some other lower priorities maybe is to reprogram it?

Ms. MILLER. Correct.

Mr. SIMPSON. Why would Sandia suggest that it is not going to affect their layoffs or furloughs when I think every other lab has indicated there is going to be a substantial amount of furloughs. Does that have anything to do with the fact that Sandia uses the highest percentage of their money for LDRD? Your labs have a cap of 8 percent they can use for LDRD, and the other DOD labs are at 6 percent. Do we need an 8 percent in your lab versus the other labs at 6 percent?

Mr. COOK. May I answer?

Ms. MILLER. Yeah, that was a conventional——

Mr. COOK. Once again, in the detail, Sandia is a multipurpose, multi-program, national laboratory. The reason that Paul Hommert and his team have said what they have said is that when you look at what we are doing in the Weapon Life Extension Program, Sandia is still in the process of building its staff. That is not the case with Los Alamos or Livermore or almost any other site. But

because Sandia believes that if sequestration occurs, we would work with them and they would curtail the growth of their staff, then they could weather that storm for a period of time.

It is also a matter of judgment. And in the case of Sandia, because they have many programs, they have more flexibility. At most of the plants we have one program, just the weapons program. And if we have sequestration, then there are curtailments. Sandia is a bit different because of the nature and the size of the place.

Ms. MILLER. And I would add Sandia is, as I am sure you know, is getting about 50 percent of its work from outside of us at this point and they probably have way more flexibility to do that. But I would—

Mr. SIMPSON. But even those programs are going to be cut.

Ms. MILLER. It is true. And I would tell you, I would not presume to speak for Dr. Hommert and what he might have meant by that.

Mr. SIMPSON. Do your labs still need an 8 percent LDRD as opposed to the other labs?

Mr. COOK. My answer would be yes. The administrator's answer may be different. The reason I would say—

Mr. SIMPSON. That is not good. You guys ought to be on the same page.

Mr. COOK. I said "may be different."

Ms. MILLER. Well, I have to say it is one thing we have not discussed.

Mr. COOK. The LDRD, the decisions there are at the hands of the laboratory director. We also have plant LDRD. It is a smaller fraction. That is the area where the head of the establishment, so to speak, can decide to make modest investments over a range of things in a portfolio. And if you look at the history of the LDRD program, what started in LDRD is frequently later on becoming a part of the weapon program.

In times where the funding was cut to 4 percent, there were such times the innovation and the growth of ideas at the labs took a substantial hit and went backwards.

Mr. SIMPSON. I am a supporter of LDRD. I think it has done some amazing things. My question is, why is it 8 percent for your labs versus 6 percent for the other labs?

Ms. MILLER. That was directed by the Congress. It was not requested by the Department of Energy, as I recall.

Mr. SIMPSON. Why did we do it, do you know?

Ms. MILLER. I would tell you that—so I did not want you to take my hesitation for hesitation on the percentage. It is actually something that we have never discussed. But I fully support what Don has said about what it does to attract and retain the type of people we need to have at the laboratories. The exact percentage is not something I was thinking about. I was thinking about the fact that we had not requested the difference in it, but it is a longstanding difference.

Mr. COOK. It is also a cap, an upper percent. It is actually not implemented at 8 percent across the sites. Depending on what the labs are pursuing and how they see the evolution of their accountabilities, particularly in the weapon program, then they will want

to make a larger or smaller investment. At most of the sites it is less than the cap, if not—

Mr. SIMPSON. Yeah. Sandia is \$160 million at 6.55 percent even though they are authorized up to 8 percent.

Mr. COOK. Right.

Mr. SIMPSON. Oak Ridge is at 2.31 percent that they spend in LDRD. So I guess there is room within that cap. I just find it interesting that Congress decided that NNSA labs were at 8 percent and the rest of the labs were at 6 percent for whatever reason. I guess we made wise decisions.

Mr. FRELINGHUYSEN. Certain strong advocates for certain programs.

Ms. MILLER. That may well have been the case.

Mr. FRELINGHUYSEN. Yes. Mr. Visclosky, thank you for your patience.

Mr. VISCLOSKY. Thank you, Mr. Chairman. Ms. Kaptur mentioned that the estimate for the Uranium Processing Facility on the high end is \$6.5 billion that was given to the Committee last year. Am I correct in understanding that the estimated cost might be higher than that now?

Mr. COOK. A range from 4.2 to \$6.5 billion was given for the uranium processing facility to this Committee.

Mr. VISCLOSKY. Okay.

Mr. COOK. And that range was based on a 50 percent confidence and an 85 percent confidence. In other words, at the lower end there is a 50 percent chance of coming over the cost and under the cost. At the higher end, 6-1/2 billion, it was an 85 percent chance of being within that cost and a 15 percent chance of being over the cost. So there is a possibility that it would be higher, but the scope is being managed. And so—

Mr. VISCLOSKY. What do you mean, “the scope is being managed”?

Mr. COOK. I mean that with regard to the choice of the tooling, the equipment, the rate at which elements are planned to go into the uranium processing facility, that scope is actually being managed. Some parts are being managed down. The technical maturity of all the tooling is being looked at. The casting of uranium, I will not go into details here, is quite well understood—

Mr. VISCLOSKY. Doctor, because of time, I have got a number of questions on this.

Mr. COOK. Sure.

Mr. VISCLOSKY. We are talking about a 15 percent probability, if I understand your estimate, that it might be higher than 6.5?

Mr. COOK. That’s a formal answer to what was given to the Committee last year.

Mr. VISCLOSKY. Okay. And is it correct that the building design was too small and that the footprint needed to be expanded for this facility?

Mr. COOK. There was a size-fit issue that came up. It was being carried as a risk. It was decided that before construction would begin, that that needed a comprehensive look and a comprehensive look at that is being made. One of the things that changed was as the design progresses, then the design team begins working with the tooling manufacturers. And what was identified was that if

there was not room to lift equipment out or over, there was a potential safety problem. And so given the attention to safety, some equipment was removed from the bill. But even so, the height of the floors had to be raised. So 13 feet vertically in that required some strengthening of the walls in the latter part of the design.

Ms. MILLER. But I would just add that of the \$6.5 billion in that range, 2 billion of that is in contingency. So we fully expect the contingency is going to help us keep that in the reasonable range that we have stated.

Mr. VISCLOSKY. I am a simple guy. Is it going to have to be a bigger building than the design originally was produced for?

Mr. COOK. Short answer is taller, yes. But a sizable expansion of the footprint, no.

Mr. VISCLOSKY. Okay. And could you tell the Committee for the record how much money we have spent on the design? I understand it is some hundreds of millions for the record.

Mr. COOK. We will take it for the record.

Ms. MILLER. We will have to take it for the record.

Mr. VISCLOSKY. You can get it for the record.

Mr. COOK. We will take it for the record.

Mr. VISCLOSKY. And I guess my question is I am not an engineer. As far as the scope of work that the designer had to begin with, they did not anticipate that height, that type of equipment that that change while they were designing the building?

Mr. COOK. I would say that is probably a fair assessment, that the details of the tooling and of the glove boxes for uranium processing were not well understood at the beginning of the design. Even now, that facility is at 65 percent design. It is not yet at 90 percent design. So, in the evolution of the engineering details, new things are learned and this, again, comes to the issue then do we really have to pay that cost or can we reduce the scope, which means cut back on some things?

Mr. VISCLOSKY. Who is the contractor doing the design?

Mr. COOK. I do not know.

Ms. MILLER. Bechtel.

Mr. COOK. We will take it for the record. I do not know personally. It is——

Ms. MILLER. It is Bechtel.

Mr. COOK. It is——

Ms. MILLER. It is Bechtel.

Mr. COOK. It is Bechtel?

Ms. MILLER. Yes.

Mr. VISCLOSKY. Bechtel, okay.

Dr. Cook, you had mentioned audits earlier in your answers. On indirect overhead charges, is there any federal oversight in what a contractor has charged the government for indirect costs and are these costs audited?

Mr. COOK. They are audited regularly, yes.

Ms. MILLER. Yes.

Mr. VISCLOSKY. Okay, good.

Thank you, Mr. Chairman.

Mr. FRELINGHUYSEN. Thank you, Mr. Visclosky.

Mr. Fleischmann.

Mr. FLEISCHMANN. Thank you, Mr. Chairman.

I have got a couple of questions. We are moving into our first year, Madam Administrator, with the Pantex Y-12 under a combined contract. When there are competing priorities, who is going to make the hard decisions? Will there be much more of an emphasis on the contractors or is that going to be a federal role? What is your model?

Ms. MILLER. So, Mr. Fleischmann, I think I might want to know what "the hard decisions" are that we are talking about, but in general, we are the people who have to make decisions particularly when it comes to spending money. And particularly when it comes to guiding the program and the mission of these sites. So, that is a federal role.

Mr. FLEISCHMANN. Okay, so, when I talk about decisions, as we move forward—

Ms. MILLER. Yes.

Mr. FLEISCHMANN [continuing]. In both places, management, everything there ultimately—

Ms. MILLER. Absolutely.

Mr. FLEISCHMANN [continuing]. That will be you all.

Ms. MILLER. We are responsible.

Mr. FLEISCHMANN. Okay.

Ms. MILLER. Yes.

Mr. FLEISCHMANN. Okay, great. One question, a follow-up, again, the problems that we have had at Y-12, it is my understanding that significant steps have been taken to deal with this. When I spoke earlier, I mean, I know we are getting fewer false alarms and I realize that we have got specific security needs for each site, but I think they have been reduced substantially.

Can you tell the committee again maybe a few specifics of how we have gone about getting better at Y-12? I know you did in a macro sense with your new program, but some of the specifics, maybe the false alarm reductions and things like that.

Ms. MILLER. So, yes, without question, actually I was most recently at Y-12. It must have been about six weeks or so ago. So, together with our contractor partners there, we have substantially reduced the false alarms and changed the procedures for dealing with them. As you know, we made changes to the way we manage the contracts and the contractors there almost immediately, including bringing the responsibility for the guard force under the M&O contractors' responsibilities together with responsibilities they already had for making sure that the guard force had what it needed. We have had changes to the way patrols are done, the numbers of people put onto the patrols, the security patrols. In fact, this week, we have had Mr. Steve Asher, who I have mentioned earlier, who was just taking over as the acting chief of Defense Nuclear Security at Y-12 I think even today as I am sitting here, to not only look at what has been implemented thus far, the concertina wire that has come in, but also to talk about what else needs to happen there to get it to the right place.

Mr. FLEISCHMANN. Thank you. Mr. Chairman, no further questions. Thank you, madam.

Mr. FRELINGHUYSEN. Thank you, Mr. Fleischmann.

Judge Carter.

Mr. CARTER. Thank you, Mr. Chairman.

Madam Administrator, you are still in the process of awarding a combined contract for operating Y-12 and Pantex sites. And as I previously said, independent estimates suggest \$1.5 billion could be saved through this merger. The media is reporting one team estimated it could save \$3.27 billion over the potential 10-year life of the \$22.8 billion contract. Now that you have received \$3 billion, do you think you will save as much as has been estimated?

Ms. MILLER. So, Mr. Carter, I will be very careful in how I answer this, as I am sure you can appreciate the fact we have an ongoing protest on that award, and, so, I am very much precluded from speaking to specifics about any of the offers.

I will tell you that I carefully reviewed the analysis that Navigant had done for us in proposing that we could make significant progress and savings by doing such a merger. I carefully worked with the source evaluation board that put together that request for proposal. I just about drove them crazy changing things almost to the last minute to try to memorialize in that RFP that we were expecting different behavior and that that would, in fact, drive savings. I want to also make sure that I say straight out mission is the most important thing, not savings. However, I do not think it is necessary or even appropriate to say what exactly that dollar amount is going to be for savings. I think it is enough to say there is no question that savings will be significant and that is enough for us to change the way we have structured this in the past and to put that requirement onto the people who are helping us run this.

Mr. CARTER. So, how do you anticipate these savings will be generated? Change in procedures?

Ms. MILLER. I would expect it results from a lot of efficiencies that are gained when you merge two similar back office operations as an example. Going on in two places, run by the same company that could be doing things in a much more efficient way if they looked to do it in a much more efficient way to reap those savings. So, as an example, I would definitely expect that—

Mr. CARTER. Well, out of the conversation we have had from others here, it is the big if.

Ms. MILLER. Yes.

Mr. CARTER. That is the big question.

Ms. MILLER. That is right.

Mr. CARTER. Thank you, Mr. Chairman.

Mr. FRELINGHUYSEN. Thank you very much, Judge Carter.

Dr. Cook, I want to get back to the National Ignition Facility. Let me say I share just about everything, the sentiments expressed by Mr. Visclosky, some of the same frustration with a lot of these costs. We spend an incredible amount of money on the NIF, \$5 billion, and the constructing and operating of it. And I always thought it is relevant related to our Stockpile Stewardship Program. One thing we do know, and correct me if I am wrong, we have failed to achieve ignition repeatedly. Is that right?

Mr. COOK. We have not yet—

Mr. FRELINGHUYSEN. Yes, that is—

Mr. COOK [continuing]. Achieved it.

Mr. FRELINGHUYSEN. Yes, you are right.

Mr. COOK. Absolutely right.

Mr. FRELINGHUYSEN. That is another way of saying it.

Mr. COOK. Yes. Well, yes, I say it differently because a failure sounds permanent. We have so far failed to achieve ignition. We have a great deal of understanding.

Mr. FRELINGHUYSEN. But why?

Mr. COOK. Let us see. We are not completely certain. So, let me start out with that. But let me tell you what we all do know and come back to a few things that have been just described about NIF.

The first is the laser, the facility was expensive. It was more expensive than was thought in the early days, no question. It was in the end competently and capably engineered and put into place and the laser performance has exceeded the expectations. We get more—

Mr. FRELINGHUYSEN. Performance.

Mr. COOK. The laser—

Mr. FRELINGHUYSEN. What about its relationship to the Stockpile Stewardship Program? I know it is doing good science.

Mr. COOK. Sure.

Mr. FRELINGHUYSEN. It is collecting a lot of data. There is a power behind other sciences it is doing, but what about its relationship to our core mission here?

Mr. COOK. So, a very good question. The laser produces a source of X-rays that are either used to drive a target, a capsule that contains cryogenic deuterium-tritium fuel and if successful will eventually achieve ignition, but it can also be that same laser can be used to drive experiments that mimic the X-rays that occur when a primary goes off in the nuclear weapon and drives a secondary. Already, a couple of key questions have been addressed and resolved by NIF. It has been applied directly as stockpile stewardship, the reason for which it was built.

Mr. FRELINGHUYSEN. So, it is not a stretch that the scientific data that has been collected from whatever you are doing there that it does directly relate to stockpile stewardship?

Mr. COOK. Oh, absolutely. That is not “a stretch” at all. We do not talk as often about that, but we have solved a couple of key problems in weapon design and weapon understanding already.

The other important thing is that the diagnostic suite around NIF was, again, competently capably done and we have some terrific diagnostics.

So, now let me come to your question: Why have we not achieved ignition yet? And I will put an emphasis on both the why and the yet. The density of the compressed fuel that we want to have, think of a very small sphere, size of a small BB or so, but hollow on the inside, but there is a shell of cryogenic hydrogenic things, deuterium-tritium. The X-rays drive that capsule to a compression. We are getting right now about half of the pressure that would be required for ignition, but not the full level. On the velocity, it is not so bad. We are getting 80 percent of the velocity that would be associated with the ignition, but we are still 20 percent short even though the laser is putting out the full amount of energy and the full amount of power and a bit more.

So, when you look deeper, what appears to be happening is that the shell is breaking up. There is hydrodynamic mix occurring and there is a thin shell of material that pushes this cryogenic fuel

shell. We are seeing in the results because the laser is working and the diagnostics are working so well that the shell that is pushing, it is mixing with the cold fuel and that stops the ignition. Fusion reactions are occurring, but not enough to get ignition yet.

Now, the conclusion then is that the codes, the simulations that we had are not——

Mr. FRELINGHUYSEN. You do not have any—just to put it in—I am not going to go head-to-head with you on——

Mr. COOK. No, no, no.

Mr. FRELINGHUYSEN. On the science, but I am just saying you do not have any disappointment that we have not achieved ignition?

Mr. COOK. I am disappointed.

Mr. FRELINGHUYSEN. I mean, there are other people that have been looking over your shoulder who have been saying what are we doing here. It is a good science, yes, but in reality——

Mr. COOK. So, let me be direct.

Mr. FRELINGHUYSEN. Yes.

Mr. COOK. Yes, I am disappointed that we have not achieved ignition because when we achieve it, we will have a source of a great deal of power that now will represent the outputs of weapons even better.

Mr. FRELINGHUYSEN. Okay.

Mr. COOK. So, there is a class of experiments that we could do for stewardship after we get to ignition——

Mr. FRELINGHUYSEN. Yes, but just the shots themselves are pretty expensive, are they not?

Mr. COOK. They are, they are. It is we are really——

Mr. FRELINGHUYSEN. Well, how much are they, \$500,000 or something or what——

Mr. COOK. It is of that order, yes, so, that order. Chris Deeney behind me would know the actual operating costs and we get one shot per day or——

Mr. FRELINGHUYSEN. This is the Scotsman you mean?

Mr. COOK. Yes, the Scotsman who you met yesterday.

Mr. FRELINGHUYSEN. He is getting very agitated so I do not want him to come over your shoulder at me.

Mr. COOK. No, no. Depending on the type of shot though, I would say between——

Mr. FRELINGHUYSEN. No, I mean on this committee here——

Ms. MILLER. About \$500,000, according to Dr. Deeney.

Mr. FRELINGHUYSEN. Yes.

Mr. COOK. Yes. He says you are right. So, that is great.

Now, so, this mix occurs. Now, the codes, however, here is where the mystery comes in and back to students and we have an Academic Alliances Program, which is part of the pipeline and people in that program are actually applied to NIF. So, they are digging through things. We also have a computation sciences——

Mr. FRELINGHUYSEN. We are admiring of the scientific talents down there and God only knows he wants some young people as excited about what you are doing, but, I mean, in terms of its relevance to its initial purpose, we are sort of working somewhat around the edges here.

Mr. COOK. So we are improving our codes in real time.

Mr. FRELINGHUYSEN. Yes.

Mr. COOK. Moreover, we are applying a greater fraction of NIF time to stockpile stewardship experiments like shock breakout—

Mr. FRELINGHUYSEN. Yes.

Mr. COOK [continuing]. And equation—all the range of things to give the Ignition Team time to take the next step in experiments. We have identified no failure yet; that is a critical—

Mr. FRELINGHUYSEN. Well, we never want to be identified with failure, but we have not—

Mr. COOK. No. No.

Mr. FRELINGHUYSEN [continuing]. Achieved the basic ignition.

Mr. COOK. Well, that is true—

Mr. FRELINGHUYSEN. Yes.

Mr. COOK. But if there is a fatal flaw, we want to know as soon as we can. That is what I meant.

Mr. FRELINGHUYSEN. All right.

Mr. COOK. We have not identified something that says we cannot achieve ignition yet; we just have not learned how to achieve it.

Mr. FRELINGHUYSEN. All right. Ms. Kaptur, all right.

Ms. KAPTUR. Thank you, Mr. Chairman. I go back to my prior request, and that is over the next year, where do you see precisely within your operation an ability to curb expenditures?

Mr. COOK. Do you want to address—

Ms. MILLER. “To curb expenditures” overall to bring the budget down?

Ms. KAPTUR. Yes.

Ms. MILLER. Well, I will not speak to the 2014 budget proposal, obviously, but we are leaving aside the budget constraints of a continuing resolution. We will operate certainly at the level of the continuing resolution should we be there for the entire year. And we will certainly deal with sequestration if it should happen.

Ms. KAPTUR. I have read your testimony about delays in certain programs and so forth, but I am talking more systemically.

Ms. MILLER. So, with regard to being able to do the work that we do at a level of budget that is appropriate, I believe that it requires for us a continual reexamination of both what we need to do and how we are going to do it.

Again, I want to be careful to say that in the proposal on the 2014 budget, you will hear things about that, but I obviously cannot talk about that right now. But the systems and the approaches that we are taking to how we do war business is the only that we know that we will be able to contain our costs as we go forward as our mission is becoming very demanding, even more demanding than ever and we are dealing with an infrastructure in desperate need at this point of recapitalization.

Ms. KAPTUR. Let me ask this: The IG, your IG, reported in October that significant savings could be had if the Department extended the same policy it has implemented to reduce federal employee travel by 30 percent to its contractor workforce, and the savings had been identified. Is there any action being taken by NNSA to reduce costs associated with contractor foreign travel?

Ms. MILLER. So, foreign travel is something that is allowable under the contract, however, in working with the people that run our sites, we have made clear how we expect those aspects of the contract which are covered typically in overhead costs to be han-

dled. I think that it is fair to say that one of the best things over the past 18 months or so has been that very close connection that we have developed with the people managing our plants and laboratories right now in the realm of how we do our business, not just in the realm of the mission and accomplishing the mission, but in the business sector of it.

We have a Business Management Advisory Council, for example, where we have the CFOs and the chief operating officers of M&O contractors come together with our senior financial people on a regular basis to try to work out where are the cost savings to be had and what can be done across the board in a consistent way and individually throughout the system to bring those costs down because we all know that they are not sustainable.

Ms. KAPTUR. Thank you, Madam Administrator.

Dr. Cook, the NNSA argued that the Kansas City Project would save \$100 million a year and construction of the building is now complete, but the funding requirements for operating the plant continue to grow, according to information we have, as the government now pays for both the old and the new facility during the transition of operations.

So, when do you think perhaps we will begin to see savings and will you still attain the \$100 million per year savings in operating costs that were claimed?

Mr. COOK. What I would like to do, if possible, is take the question for the record. The part I will answer is that we are on schedule for the move. We had a plan that took into account the fact that we would have to pay both for the current Bannister Road Facility while introducing the Botts Road Facility, the new one. We are on the schedule. I believe that we are achieving our objectives, but I would like to give you a quantitative answer for the record.

Ms. KAPTUR. Can you indicate whether the 2014 budget might have funds to—

Ms. MILLER. No.

Ms. KAPTUR [continuing]. Remediate the old site?

Mr. COOK. I cannot speak to the 2014 budget.

Ms. KAPTUR. If it were to contain funds, that would be in addition to the \$100 million that would subtract from the savings, would it?

Mr. COOK. Again, I cannot speak to the 2014 budget.

Neile, can you say?

Ms. MILLER. No, I mean, I think that it is clear that the costs that we anticipate for having to carry two facilities while we move has been an anticipated cost. We have to carry the facilities while we move. That kind of move is not going to happen—we do not anticipate that schedule being able to be cut in any significant way to change the costs that were anticipated during the transition.

Ms. KAPTUR. Okay. All right, thank you, Mr. Chairman.

Mr. FRELINGHUYSEN. Thank you, Ms. Kaptur.

Mr. Visclosky.

Mr. VISCLOSKY. Thank you, Mr. Chairman.

It is my understanding that NNSA has reduced the number of contracts awarded to small businesses by about \$70 million at its peak.

If that is correct, what is the administration doing to improve opportunities for small businesses?

Ms. MILLER. Mr. Visclosky, thank you. I would like to take the specifics of that for the record. I will tell you that as I know from your many years of working with the Department of Energy and the NNSA, you are aware that we have quite a large amount of money that goes out to small businesses, but through our M&O partners.

Mr. VISCLOSKY. Yes.

Ms. MILLER. Which does not register as direct contracts to small business, but a significant part of our work is done that way. And the rest of us are working to do what we can so that we can get the direct dollars out to the extent possible and practicable.

Mr. VISCLOSKY. Thank you, Mr. Chairman.

Mr. FRELINGHUYSEN. Thank you. I just have a couple of questions. It is past high noon. We do not want to keep you much longer.

Dr. Cook, last year, you announced the delay on the CMRR and——

Mr. COOK. Yes, sir.

Mr. FRELINGHUYSEN. And you submitted a reprogramming request for the alternative plutonium strategy. Can you define exactly what we are doing? What is the new concept here? Is it going to fill the gap until that point in time when we——

Mr. COOK. Sure, sure.

Mr. FRELINGHUYSEN [continuing]. Take a look at that site——

Mr. COOK. Yes.

Mr. FRELINGHUYSEN [continuing]. And what potentially might go there. If ever.

Mr. COOK. First on terminology, although we had said alternate plutonium strategy or interim plutonium strategy, it is altogether the plutonium strategy. So, we will just use——

Mr. FRELINGHUYSEN. It is not a new concept?

Mr. COOK. No, it is not. The Weapon Life Extension Programs require that we have the capability to build 10 pits by a certain time, 20 pits shortly thereafter, 30 pits after that. We do not have an immediate requirement to build more than that and we believe that we can do that within PF4, but we need all the supplementary capabilities. So, a part of the strategy is to focus on the newly constructed part of CMRR that is done and that is the radiological lab, the utility and the office building. People have been moved in. We are in the process of moving equipment in. We are moving equipment out of the existing CMR, the old 50-year-old building. So, that is part of the strategy. We have looked at options for cleaning out the vault in PF4. That is part of the strategy and we are proceeding at a good clip to do that.

In the time that we have until we have additional capability, we are also looking at——

Mr. FRELINGHUYSEN. So, to some extent, you are making due with the existing footprint or——

Mr. COOK. We expected that for this period of time——

Mr. FRELINGHUYSEN. Yes.

Mr. COOK. Before, we had additional capability and it was not going to be there before 2023. And so, a five-year date would bring that to 2028, considerable time away.

We have taken a look at requirements. We are in the midst of that right now and if we could determine that there are some requirements for equipment in PF4 that actually do not exist anymore in terms of, once again, the term “managing the scope,” then a part of the strategy will be to take some of that equipment out and create more space in PF4, which has adequate safety and security for operations that do not have a large amount of material at risk.

I would be happy to entertain any other—

Mr. FRELINGHUYSEN. And what timeframe? What is the timeframe here?

Mr. COOK. The timeframe for move of—

Mr. FRELINGHUYSEN. For the building.

Mr. COOK. For CMRR?

Mr. FRELINGHUYSEN. Yes. Yes.

Mr. COOK. For a replacement of CMR capability, the timeframe is the five years from 2023—

Mr. FRELINGHUYSEN. Yes.

Mr. COOK [continuing]. Which is 2028. We are seriously looking though at any way that we can improve the plant and we have found several ways. So, if equipment, we have sufficient funds in some lines of our plutonium sustainment to clear out space in PF4, make the decisions that are within our decision scope, we work closely with DoD in doing this and put more of the equipment together in a process flow line, what we call a process flow sheet so that is more efficient.

The timescale of what we need to do, until we get out of CMR and until we need to be able to manufacture 10 pits per annum is just fiscal 2019. And so, this period right before us is the one we are really focused on.

Mr. FRELINGHUYSEN. Well, on behalf of the committee, and let me just put—I know you are prohibited from talking about the 2014 budget, but on behalf of the committee, we would like to see a stockpile production plan once you submit your fiscal year 2014 budget request. This is something which we have been keen on getting.

Ms. MILLER. Yes, yes.

Mr. FRELINGHUYSEN. So, we would like to see that.

Ms. MILLER. Yes.

Mr. COOK. We will provide that. I know that Colonel Dawkins has looked at this. We know the timescale and we will provide that in concert with the 2014 budget. Not at exactly the same time, but when we take those budget amounts into and develop the plans—

Ms. MILLER. Right.

Mr. COOK [continuing]. Within a matter of just a couple of months, we will provide the production plan.

Mr. FRELINGHUYSEN. That would be extremely beneficial.

Administrator Miller, thank you for your testimony.

Ms. MILLER. Yes, sir.

Mr. FRELINGHUYSEN. Dr. Cook.

Mr. COOK. Thank you.

Mr. FRELINGHUYSEN. Colonel Dawkins, Godspeed to you.

Mr. DAWKINS. Thank you.

Mr. FRELINGHUYSEN. Promotable, we like that. Next time you come here, we expect to see higher ranks since you certainly are deserving.

Ms. MILLER. More medals.

Mr. DAWKINS. Talk to the colleagues over in the Senate to confirm the nomination.

Ms. MILLER. It was a nice start, but——

Mr. FRELINGHUYSEN. Well, I am not sure what they can accomplish over there, given the fact that they usually have to deal with one issue at a time. But, hopefully, giving you the green light would be certainly a great thing.

So, thank you all for being here. Thank you for the men and women who support your activities. There is nothing more important in our committee's jurisdiction than your mission.

Ms. MILLER. Thank you very much.

QUESTIONS FOR THE RECORD
SUBCOMMITTEE ON ENERGY AND WATER DEVELOPMENT
HOUSE COMMITTEE ON APPROPRIATIONS

NATIONAL NUCLEAR SECURITY ADMINISTRATION:
WEAPONS ACTIVITIES FISCAL YEAR 2014 BUDGET HEARING
FEBRUARY 14, 2013

WEAPONS ACTIVITIES

CHANGES SINCE THE NUCLEAR POSTURE REVIEW

Subcommittee. Dr. Cook, as we all recognize, the Budget Control Act (BCA) will impose significant restrictions to the defense budget. These restrictions may require some changes in the way the Administration was proposing to maintain the stockpile and invest in a modernized infrastructure. You've already delayed construction of the CMRR-Nuclear Facility five years.

Can you explain what has changed for modernization since the Nuclear Posture Review, including how the cost growth associated with the B61 LEP and the Uranium Processing Facility is impacting your plans?

Dr. Cook. There have been some planning changes for modernization since the publication of the NPR Report. NNSA has worked through the Nuclear Weapons Council to prioritize requirements and refine our integrated plans for infrastructure modernization and the future stockpile. For the W76-1 Life Extension Program, the Department of Defense and NNSA have agreed on a revised production total and annual production rate that meets strategic deterrent needs and the Navy's load out schedule. For the B61-12 Life Extension Program, DoD and NNSA agreed to align the First Production Unit to FY 2019, instead of FY 2017 as described in the NPR Report. In addition, NNSA refined the cost estimates for both the B61-12 LEP and the Uranium Processing Facility (UPF) as designs for both projects matured. Regarding the B61, NNSA will submit initial program baseline with the first Selected Acquisition Report later this year. The Administration and Congress will measure cost performance of the program using that baseline. For UPF, NNSA has sought adequate and stable funding independent of other projects in our construction portfolio. Since the NPR, the cost estimate for the UPF project has increased, and planned scope has been prioritized to transition the capabilities at highest operational risk in Building 9212 first. Since Critical Decision-1 reaffirmation in 2012, the UPF budget profile has been adjusted to reflect early analysis by the DoD CAPE team. Further adjustments to the UPF budget profile and/or total cost range will be informed by the ongoing multi-year, iterative analysis process between NNSA and CAPE. Finally, we have deferred the Chemistry and Metallurgy Research Replacement Nuclear Facility construction and are now studying alternatives to ensure continuity of program capability. NNSA

will continue to explore opportunities that will modernize our enterprise more efficiently and maintain the capabilities needed to meet our future mission requirements.

Subcommittee. What do you believe the infrastructure and stockpile needs to look like ten or twenty years from now? How is that different from when the NPR was released? Is this all driven by budget constraints or is your understanding of the work to be accomplished evolving?

Dr. Cook. We must continue our efforts to make our infrastructure safer, more responsive, and less costly to maintain as our budget priorities allow. We will continue to require replacement facilities for uranium manufacturing and support facilities for plutonium manufacturing. The plutonium manufacturing support should enable 30 pits per year by 2021, and for the longer term, requirements for increases in new-pit manufacturing are still under consideration. The Nuclear Weapons Council has endorsed a vision of the future stockpile consisting of three interoperable ballistic missile warheads and two air-delivered warheads. This future stockpile is a natural progression of the policy guidance documented in the 2010 Nuclear Posture Review Report. As noted above, some specific planning dates have changed since the Administration published the NPR report. Moreover, for the W78/88-1 Life Extension Program (referenced as the W78 Life Extension in the NPR), the Nuclear Weapons Council approved commencement of a Phase 6.2 Feasibility Study consistent with the NPR guidance to consider the possibility of using the resulting warhead on SLBMs to reduce the number of warhead types. The Nuclear Weapons Council considered affordability, alignment with delivery platforms, and workload across the nuclear security enterprise in adjusting dates for all life extension programs.

PRIORITIES

Subcommittee. Madam Administrator, even in a limited funding environment, we must ensure that national security priorities are being properly funded.

What are your top five priorities for the Weapons Activities account?

Administrator Miller. While not in priority order these priorities are critical to the modernization and sustainment objectives for the Nuclear Security Enterprise:

- Implement the NPR call for interoperable warheads through executing the new LEP Strategy (“3+2”)
- Implement the updated and more complete Pu Strategy to meet requirements
- Refocus campaigns on capabilities and understanding most needed to support the LEPs (reflected in Pit Reuse investments and LEP support)
- Strengthen the Science, Technology, and Engineering Base that underpin current mission needs and to deal with broader national security challenges for the country

Subcommittee. Will your FY14 budget request reflect these priorities?

Administrator Miller. Yes, the President’s Budget Request reflects these priorities.

Subcommittee. Where are the main challenges? What are you doing to address these challenges?

Administrator Miller. The main challenges to these priorities are that:

- Much of this work has not been baselined and so the cost estimates may change

- Technological surprise may require changes to scope, schedule or cost
- NNSA and DoD have very aggressive efficiencies planned within the FYNSP for Weapons Activities
- Savings targets to be achieved via management efficiencies and workforce prioritization have been set and studies are underway
- We are still assessing the impact of sequestration and future reductions in the President's Budget request will put further strain on our modernization efforts

To address these challenges, NNSA:

- Continues to complete baselines and provide reports to Congress in a timely manner;
- Steadily invest in NNSA's RDT&E capabilities to enable NNSA to respond to potential technical surprises; and
- Actively conducts studies on the required efficiencies to ensure; they are achievable; the risks are fully understood; and the results are timely.

STOCKPILE REDUCTIONS

Subcommittee. The media has been reporting for some time now that the Administration is considering dramatic reductions in the stockpile – perhaps down to approximately 1,000. In testimony last year, Tom D’Agostino stated that one of the key recommendations of the Administration’s 2010 Nuclear Posture Review was to conduct follow-on analysis to set goals for future nuclear reductions. Since then, a “Nuclear Posture Review Implementation Study” has been completed, and yet this Committee has not received any information on its results and recommendations.

What is happening with the NPR Implementation Study? Do the findings of this study support a reduction in our stockpile?

Administrator Miller. The NPR Implementation Study is primarily the responsibility of the DoD. NNSA continues to support DoD in the analysis of the best approaches to implementing the NPR.

Subcommittee. When will this study be provided?

Administrator Miller. DoD would have to comment on the dates of any forthcoming studies.

Subcommittee. Will your next budget request incorporate the results of this study or have other decisions by the Administration made this study obsolete?

Administrator Miller. Yes, NNSA and DoD are working very closely through the NWC and the CAPE to align requirements and resources. If there are any changes to stockpile requirements NNSA will incorporate these into our planning.

STOCKPILE

B61 LEP COST ESTIMATES

Subcommittee. Dr. Cook, the subcommittee directed the NNSA to provide a detailed cost estimate for the B61 life extension program (LEP). When you provided the results of that cost estimate last summer, we discovered that actual anticipated costs of the alternative selected had grown in one year's time from \$5 billion to as much as \$10 billion to complete.

Why have costs escalated so rapidly?

Dr. Cook. As noted in the FY12 SSMP, the B61 LEP cost estimate was a parametric estimate derived using the current Future Years Nuclear Security Plan (FYNSP) for 2011-2016 and escalating out-year funding by 2%. The costs utilized in the 2011 FYNSP were developed in 2009 nearly three years prior to the completion of the official cost estimate in the Weapon Design and Cost Report (WDCR) and prior to receipt of military requirements and development of design concepts. Additionally, the estimate assumed a 24-month Phase 6.2/2A study with a first production unit (FPU) in 2017. The FY12 SSMP states that the B61 LEP total cost is a parametric estimate and the official cost would be completed in the WDCR in late 2011. The WDCR estimate provided to Congress in July 2012 integrates design and production site estimates created consistent with GAO cost guidance and based on the B61-12 conceptual designs with a 2019 FPU schedule. The NNSA cost estimate, contained in the WDCR is \$7.1B with an additional \$.8B needed in other programs to support the B61-12 LEP. The B61-12 LEP is currently in Phase 6.3 Development Engineering and will submit the initial baseline in our first Selected Acquisition Report in 2013.

Subcommittee. You still have several years of development work to do before the B61 LEP will enter production. Do you feel that the present cost estimate is accurate, or is there still significant uncertainty in your understanding of what it will take to complete development activities and transition to production?

Dr. Cook. The NNSA cost estimate, the B61-12 WDCR from July 2012, is a bottoms-up estimate involving over 40 product realization teams and hundreds of analysts and was developed using the GAO cost estimating

principles. The estimate is based on the most comprehensive conceptual design and system requirements developed during a Phase 6.2A effort. The individual site estimates were also independently reviewed by the submitting organization and approved by site management as a commitment to NNSA to execute at the cost estimate. The cost estimate includes risk-based contingency and management reserve to address risk management. The cost estimate will be refined throughout the program and will be updated after the Baseline Design Review in FY2016.

CAPE AND NNSA COST ESTIMATES

Subcommittee. The NNSA cost estimate for the B61 LEP was independently verified by the Department of Defense's cost analysis group, known as the CAPE. There is a \$2 billion difference between the NNSA and the DoD cost estimate.

Why is there such a large difference between these two cost estimates?

Dr. Cook. The \$2B cost difference is principally the result of a 3 year difference in the scheduled completion date for the FPU (2019 for NNSA vs 2022 for CAPE), and the fact that CAPE uses a higher escalation rate (4% vs. roughly 2% for NNSA).

The Nuclear Weapons Council has endorsed a FPU of FY 2019. Apart from sequestration impacts, we recognize there are some risks to that schedule as noted in the CAPE estimate however, NNSA believes that the risks are manageable and that the date is achievable.

Subcommittee. Will you finally reconcile your estimate with the CAPE and come to an agreement on the estimate?

Dr. Cook. From the above response, NNSA believes that, effectively, the estimates have already been reconciled. As noted in the above response, NNSA recognizes that the 2019 date has some schedule risk, but we believe this date is achievable.

Subcommittee. What reforms have you made that would provide better assurances that you've improved your ability to perform valid cost estimates for multi-year activities?

Dr. Cook. NNSA is assessing improvements to cost estimation, including the use of a standardized Work Breakdown Structure and better use of existing cost data in developing Cost Estimating Relationships. Additionally, the recent Defense Programs re-organization includes a Systems Engineering office which is certain to better define technical requirements and improve integration across DP – ultimately resulting in a better picture of work scope and schedules with associated improved cost estimating.

Finally, we are also working with CAPE to take best advantage of the cost estimating capabilities that the DoD has developed.

B61 ALTERNATIVES

Subcommittee. Dr. Cook, the cost growth associated with the B61 since it was first envisioned is enormous – as much as doubling the original \$5 billion cost estimate. You’ve stated that you chose a less ambitious option than you had originally proposed because it became unaffordable, choosing to forego some new surety technologies – technologies that you spent significant sums to develop. At the same time, we know that you considered other options for the B61 which would be less expensive than what was selected. Without providing the subcommittee with a 10-year budget plan, you’ve made it very difficult for us to determine if the \$10 billion option you’ve selected will be affordable.

Can you please discuss what options were considered for extending the life of the B61?

Dr. Cook. The Nuclear Weapons Council (NWC) evaluated seven options as part of Phase 6.2A, ranging from a full scope LEP with enhanced surety technologies to replacing only three aging components [Triple Alteration (Alt)]. After reviewing those options, the NWC selected the option (3B) which satisfies the minimum Department of Defense threshold requirements at reduced life cycle costs.

Subcommittee. Why was this \$8-10 billion version selected over other options which were less expensive?

Dr. Cook. Option 3B maximizes the reuse of nuclear and non-nuclear components while still meeting military requirements for service life extension and consolidation of multiple versions of the B61 into the B61-12. The option forgoes the newest surety technologies and instead improves security and safety of the bombs using somewhat older, but proven, technologies. Although two of the other seven options had an initial lower cost, their lifecycle cost was higher as a result of not addressing all aging concerns. These two options would have necessitated another LEP to address the remaining concerns.

B61 TRIPLE ALTERATION (TRIPLE ALT)

Subcommittee. Dr. Cook, before the 2010 NPR was released, the plan for extending the life of the B61 was known as the Triple Alt. This option had a significantly smaller scope of work plan, and the nuclear refurbishment was not planned until 10 years later. The NPR advocated that a full scope life extension be performed.

The full scope life extension that was chosen when you were working on the NPR is now as much as \$10 billion. What was the expected cost at that time?

Dr. Cook. The B61-12 Life Extension Program cost was not known while the NPR was in progress, only a rough order of magnitude or parametric estimate could be made at that stage. The NPR was published before the B61-12 official estimate was generated in Phase 6.2A and documented in the Weapon Design and Cost Report (WDCR). The NNSA cost estimate, contained in the WDCR delivered on July 23, 2012, was \$7.1B with an additional \$.8B needed in other programs to support the B61-12 LEP. The B61-12 LEP is currently in Phase 6.3 Development Engineering and we will submit the initial baseline in our first Selected Acquisition Report in 2013.

Subcommittee. We now know there are several billion dollars of difference between these two options and some outside groups have advocated that NNSA return to this original approach.

With a serious need to reduce costs in the near term to meet our deficit reduction goals and to fully fund modernization of the NNSA infrastructure, is this being considered as an area for cost savings?

Dr. Cook. No. The Nuclear Weapons Council approved Option 3B for the B61-12 LEP. That is the option we are all working towards.

Subcommittee. Would a triple alt now, followed up by a nuclear LEP within 10 years, maintain the reliability of the B61 bomb? Or is it too late to return to this approach?

Dr. Cook. The Triple Alt does not address all aging concerns and does not meet military requirements for mod consolidation, tail kit assembly

integration, extension of limited life component exchange periods, compatibility with digital interfaces and delivery platforms. Although the Triple Alt option had an initial lower cost, the lifecycle cost is higher because of not addressing all aging concerns, necessitating another LEP within the 2020's.

COST BENEFITS OF WARHEAD UPGRADES

Subcommittee. Dr. Cook, this subcommittee directed the NNSA to perform a cost benefit analysis for any upgrades to warheads as they undergo refurbishment, including upgrades for safety, security or to reduce the costs of maintenance. The option selected consolidates several of the different B61 mods – presumably to save on maintenance costs paid by the Air Force. It is up to the Administration to provide supporting information on why it makes sense to spend a considerable amount of funding in order to consolidate these mods.

Has NNSA and DoD performed a cost benefit analysis on how much will be saved by consolidating mods?

Dr. Cook. Yes. As discussed in the *B61-12 Life Extension Program, Interim Report on Commencement of Phase 6.3 Activities*, July 2012, NNSA and DoD jointly assessed life cycle costs and benefits associated with life extension options during the Phase 6.2/2A Study. After reviewing life cycle costs for each of the options, the Nuclear Weapons Council (NWC) selected Option 3B as the most cost effective option that met military requirements. The option includes mod consolidation using a USAF-provided tail kit assembly. Without mod consolidation, NNSA would be required to conduct two separate life extension programs with different scopes to address strategic and extended deterrence requirements. Additionally, mod consolidation will allow for reduced DoD maintenance and logistics activities and enable NNSA to maintain a more focused surveillance and assessment program for the single bomb variant instead of the additional effort maintaining certification for two bomb variants.

Subcommittee. Are you performing any other analysis that would help inform the committee that these modifications to improve maintainability are worth this large investment?

Dr. Cook. NNSA has provided a cost benefit analysis for aspects of the B61-12 Life Extension Program in the *B61-12 Life Extension Program, Interim Report on Commencement of Phase 6.3 Activities*, July 2012 required per the House Energy and Water Development, and Related Agencies Fiscal Year 2012 Report (House Report 112-118).

Subcommittee. Can we expect a consistent, rigorous process for future life extension programs where costs, benefits and operational tradeoffs are made?

Dr. Cook. NNSA and DoD work through the joint Project Officers Groups to determine and evaluate options and tradeoffs, which go to the Nuclear Weapons Council for approval. In order to develop more stringent cost estimates, NNSA has implemented a process for future life extension programs where the Phase 6.2/2A Weapon Design and Cost Report (WDCR) estimate is created consistent with the most recent GAO cost guidance. This information for the W78/88-1 LEP will be included in the commencement of the Phase 6.3 Development Engineering report that is required per the House Energy and Water Development, and Related Agencies Fiscal Year 2012 Report (House Report 112-118).

TECHNOLOGY MATURATION FOR LIFE EXTENSION PROGRAMS

Subcommittee. Dr. Cook, the W76 LEP experienced large cost growth and schedule delays because it did not take early action to make sure it could produce a key material. Funding was also wasted on early B61 activities because you spent considerable effort developing safety and security technologies that were not ready to include as part of the LEP. In order to improve management while in the early development phases of a LEP, this subcommittee asked the NNSA to develop a technology maturation plan for components that have low technology readiness levels.

What are you doing to improve management of maturing new technologies throughout all phases of a life extension program?

Dr. Cook. To improve the management of maturing new technologies, NNSA has developed a component maturation framework. This framework identifies technology needs to support future LEPs, weapon alterations/modifications, and limited-life component exchanges; it tracks progress of individual technology development efforts to ensure that needed technologies are matured to a technology and manufacturing readiness level high enough to be considered for future weapon refurbishments; and, finally, it coordinates the maturation of software tools, experimental capabilities necessary for upcoming modernization design efforts and the qualification of component performance including their related system-level integration.

Subcommittee. Will you have clear milestones for when technologies will be excluded if they are not ready to go forward? Does it depend on the feature?

Dr. Cook. NNSA will direct technology maturation according to required timelines to support insertion for LEPs, alterations, modifications and limited-life component exchanges. Technology readiness levels (TRLs) and manufacturing readiness levels (MRLs) govern the application and integration of technologies, and NNSA oversees and tracks the status of their associated TRLs and MRLs. If technologies have not matured to the appropriate level, the LEP program manager shall make a determination on an individual basis whether to expedite maturation or select an alternative approach. Some technologies are specific to certain weapon systems while others are being developed as common components for multiple systems. Common components can be developed for other systems in need of life

extension even if they miss the insertion window for a particular LEP. High or critical priority technologies are also emphasized, and their TRLs and MRLs are tracked and closely managed to ensure their availability for phase 6.3.

To facilitate this process, two new subordinate organizations will be established within NA-10 to handle system engineering and integration (SE&I) and major modernization programs (MMP) respectively. Through the SE&I, we will implement a requirements management process and a disciplined systematic approach to implementation and integration of programmatic activities within the Defense Program organization. Through the MMP we will develop, direct, and oversee the activities related to the life extension programs (LEPs) of the nuclear weapon stockpile and the associated modernization of key science and manufacturing capabilities required to maintain the stockpile.

SYNCHING NNSA AND DOD MODERNIZATION ACTIVITIES

Subcommittee. Dr. Cook, the NNSA is spending considerable resources on the early phases of development for a life extension program for the W78 which is mounted on the Minuteman III ICBM. Last year, the DoD moved back its requirement to begin modernization of the Minuteman III to 2030. You stated production on the W78 life extension was to begin in 2023. Given limited near-term budgets, this raises the question of proper sequencing of projects.

Why move forward on this timeline for the W78, particularly when we have so many other large investments to pay for with this budget? Or are you considering pushing it further back?

Dr. Cook. Life Extension Program (LEP) schedules are developed by a joint DoD/NNSA Enterprise Planning Working Group, are now reviewed and evaluated by the DoD Cost Assessment and Program Evaluation (CAPE) team, and are approved by the Nuclear Weapons Council (NWC). The time-line for executing LEPs considers alignment of warhead development and production schedules with DoD system platform upgrades and balancing the workload across the Nuclear Security Enterprise.

The W78/88-1 LEP will address components approaching their end-of-life and improve system surety. With the recent change directed by the NWC for the Initial Planning Target in FY2025, the W78/88-1 LEP is scheduled to complete production in the early- to mid-2030s, consistent with the DoD requirement to begin modernization of the Minuteman III in 2030.

Subcommittee. Are these refurbished warheads simply going to sit in storage until the missiles are modernized?

Dr. Cook. As part of NNSA's coordination with DoD, the W78/88-1 LEP is scheduled to begin production in the mid-2020s and to complete production in the early- to mid-2030s. These life-extended weapons will be compatible with the current Minuteman-III delivery system and – because of close coordination and planning – will be compatible with the DoD's modernized Minuteman III.

Subcommittee. When is the very latest that the W78 life extension program would need to start to maintain reliability? Are there any

components that must be replaced in the near term, or would the system remain reliable if the LEP were delayed another 8-10 years?

Dr. Cook. Our current stockpile is reliable, and we revisit its reliability through surveillance and assessment each year; however, system performance naturally degrades with time due to component aging. Some items can be fixed through maintenance and limited-life component exchanges. Those items that require extensive operations are captured in refurbishments, where costs generally increase over time. NNSA has identified components that need to be refurbished, and the NWC has approved the baseline LEP schedule to meet those requirements. Wherever possible insensitive high explosives will replace the conventional high explosives, and detonator safing features will be added. As previously stated, scheduling LEPs considers factors such as alignment with DoD system platform upgrades and balancing the Nuclear Security Enterprise workload, in addition to reliability and surety enhancements.

Subcommittee. Does it make sense to delay a decision on the W78 or a common warhead to synch up the two modernization programs? Are there efficiencies that could be gained?

Dr. Cook. The NWC selected a baseline LEP schedule which was developed by a joint DoD/NNSA Enterprise Planning Working Group, was reviewed and evaluated by the DoD CAPE, and was approved by the NWC. As a result, NNSA's execution of LEPs is aligned with DoD delivery platform upgrades, and other goals are factored in, such as reducing the total number of systems by incorporating interoperable warheads; balancing the workload across the Nuclear Security Enterprise; and balancing the deployments in the submarine-launched ballistic missile (SLBM) and intercontinental ballistic missile (ICBM) legs.

The W78/88-1 LEP is scheduled to complete production in the early- to mid-2030s, which is in synch with the DoD requirement to begin modernization of the Minuteman III in 2030.

W78/W88

Subcommittee. Dr. Cook, the NNSA is ramping up work to extend the life of the W78. The funding provided for the W78 is being used to develop concepts and technologies for a common W78/W88 warhead. Given these activities and public statements made by NNSA, it appears that you've pre-selected a common warhead as the preferred option to extend the life of the W78.

Is this the only option being explored at this point in time? Are there other options available and which of these other alternatives are being considered by the Administration?

Dr. Cook. NNSA has explored multiple options and, consistent with the Nuclear Weapons Council (NWC) authorization, is pursuing a W78/88-1 interoperable warhead.

To assess the potential for deploying life-extended weapons on multiple platforms, NNSA completed a scoping study (the "120-Day Study") to evaluate the use of interoperable nuclear explosive packages (NEPs) and other components, and Congressional staff were briefed on these results in August, 2012. The results of the study were encouraging and the NWC formally asked NNSA to join the USAF and USN in a joint Phase 6.2 Feasibility Study and Option Down Select. The NWC specifically authorized NNSA to pursue interoperability of the NEP and compatibility with the USAF Mk12A and/or Mk21 reentry vehicle and USN Mk5 reentry body (a.k.a. a common W78/88 warhead). Both Los Alamos National Laboratory (LANL) and Lawrence Livermore National Laboratory (LLNL) are developing NEP options to achieve these objectives.

Subcommittee. Are you developing estimates on how the cost of a common warhead compares to the cost of simply extending the life of the W78 consistent with its current design? Will you provide the committee with a comparative analysis prior to selecting a final baseline design?

Dr. Cook. NNSA is developing cost estimates on several options for down-select consideration developed by LANL, LLNL, and Sandia National Laboratories (SNL). Once a down-select decision is made, a Weapon Design and Cost Report (WDCR) will be fully developed. Down-select metrics are being developed by the W78/88-1 Project Officers Group (POG)

and will be used for comparative analysis of options and to make a down-select recommendation. The NWC will select a final baseline design. The Committee will be kept informed on the progress and decisions.

Subcommittee. Why is commonality so important for the stockpile?

Dr. Cook. Commonality reduces the total number of systems to maintain and facilitates long-term management of the stockpile. It will enable systems to leverage surveillance data on common non-nuclear components deployed in multiple systems. It will reduce the overall number of unique components to manage and maintain and potentially reduce the number of system-specific surveillance samples by using data from multiple platforms. It also reduces the costs associated with design, development, qualification, and production of components.

The W78/88-1 LEP is the first interoperable warhead concept supporting U.S. Strategic Command's and NWC Strategic Baseline Plan 3+2 nuclear strategy of three (3) ballistic missile warheads and two (2) air-launched warheads. Deployed on both the USAF and USN ballistic missile delivery platforms, these warheads will contribute to a smaller, yet more dynamic and agile, stockpile and will improve safety, security, and maintainability by increasing the required time interval between DoD/NNSA maintenance operations.

SAFETY OF WEAPONS DISMANTLEMENTS

Subcommittee. Dr. Cook, NNSA just recently completed dismantling the B53 bomb, the oldest weapon in America's arsenal and one of the largest in U.S. history. This was a very challenging effort and there were significant controls that had to be in place before it could be safely dismantled. This program was ultimately completed without incident. However, recently safety concerns were raised by the DOE Inspector General on the safety of dismantlements at Pantex.

Knowing the large numbers of weapons that are planned to be dismantled over the next few years, what is NNSA doing to ensure that weapons dismantlements are performed safely?

Dr. Cook. The recent success of the B53 clearly demonstrates Pantex's abilities and commitment to safety. We have, and will continue to, deploy Seamless Safety for the 21st Century at Pantex--a philosophy that relies on effective training, high quality procedural analysis in the form of nuclear safety and readiness reviews, and new tooling. Currently, we do not have any weapons that have inherent safety concerns, and our Pantex operations (tooling, facilities, on-site transportation operations) are designed to mitigate potential hazards to nuclear safety.

Subcommittee. How are you addressing the DOE Inspector General's concerns?

Dr. Cook. The Inspector General offered two suggested actions in their Final Audit Report on dismantlement. The first was associated with the condition of the infrastructure associated with Zone 4 and the second with the magnitude of weapon components being staged at Pantex. The IG also noted in their report that NNSA is aware that actions are being taken to address these areas.

Concerning Zone 4, the NNSA Nuclear Production Office (NPO) proposed developing a construction project to upgrade/revitalize these systems. The next step would be to prepare a proposal to 1) establish a program mission need for the work, and 2) authorize funding to develop a conceptual design of the project. There is currently no funding in the FY13 budget for development of a decision package to proceed with conceptual design, but we are exploring funding possibilities in future years.

As far as component disposition activities are concerned, we are committed to ensuring all excess components from our ongoing dismantlement activities are dispositioned so that we do not compound the staging issue. While we recognize there is much work to be done in the way of legacy components, over the past several years Pantex has made a concerted effort to reduce the excess component staging. Last year alone Pantex dispositioned over 500,000 parts and exceeded their goals in multiple disposition categories.

COMMITMENTS TO DISMANTLEMENTS WITH REDUCED FUNDING

Subcommittee. Dr. Cook, in 2008, NNSA set a goal to dismantle all nuclear weapons retired prior to FY 2009 by the end of FY 2022. In April 2011, NNSA reiterated that goal in its latest Production and Planning Directive.

With new budget cuts and sequestration on the horizon, will you still be able to meet your dismantlement commitments to Congress, or is this goal in danger under the caps set by the Budget Control Act?

Dr. Cook. We believe we can still meet the goal and remain committed to it. Over the last few years, we have been able to exceed our annual dismantlement goals. This has provided us with some margin and should enable us to stay on track to meet the FY 2022 goal despite sequestration. However, we have not fully assessed what impact the workforce prioritization and management efficiencies may have on the program within Defense Programs over the FYNSP.

STOCKPILE STEWARDSHIP EXPERIMENTS

Subcommittee. For the record, please submit for FY 2011 through FY 2012 the total costs associated with the 13 facilities associated with plutonium experiments and the associated number of experiments per year.

Dr. Cook. In FY 2011 and FY 2012, plutonium experiments were conducted at the PF-4 facility at TA-55 at Los Alamos National Laboratory, U1a at the Nevada National Security Site, the JASPER (Joint Actinide Shock Physics Experimental Research) Facility at the Nevada National Security Site, and the Z Machine at Sandia National Laboratories. The information below reflects an approximation per annum of the marginal costs for conducting plutonium experiments at these facilities:

Facility	
PF-4	\$10 million/year
U1a	\$20 million/experiment
JASPER	\$12 million/year
Z machine	\$10 million/year

From FY 2011 – FY 2012, there were: 91 plutonium experiments conducted at TA-55; 2 plutonium experiments conducted at U1a; 7 plutonium experiments conducted at JASPER; and 6 plutonium experiments conducted at Z.

For further information regarding experiments conducted at these facilities, please refer to the Stockpile Stewardship Quarterly Experiments updates available at

<http://nnsa.energy.gov/ourmission/managingthestockpile/sspquarterly>.

SCIENCE

NATIONAL IGNITION FACILITY

Subcommittee. Dr. Cook, each shot at the NIF costs around \$500,000 and you have already performed many shots, generating an enormous amount of experimental data to be analyzed.

If analysis is so important during this next phase, why continue the same pace of experimental activity given the high costs and the abundance of experimental data that is currently available for analysis? Or do you expect the pace of experimental activity and subsequent funding needs to go down?

Dr. Cook. The total average cost of a NIF day is in the range of \$0.5 M to \$1.0 M based upon the complexity of the experiments. It is important to note that the major cost of NIF is staffing the facility to operate and maintain the ability to perform shots. The incremental cost of the hardware for extra shots during the time the facility is available is marginal. Initially, the goal was “24/7” operations, but operations have dropped back to five days per week, and it is possible that the number of shifts per day during which the facility is fully manned will be further reduced.

The FY 2009 – FY 2012 experimental program during the National Ignition Campaign was focused on an approach attempting to achieve ignition by adjusting laser and target parameters based upon the most recent results, to see if we could get closer to ignition based on the initial calculations. Unfortunately, we have discovered that there are a lot of issues we do not understand well enough to continue that approach. In particular our codes and models were inadequate to predict accurately what we have observed. While analysis is important, it is also especially important to increase the data that illustrates where our codes and models are incorrect, and provide the information that will enable us to improve those models. Therefore, we are changing the way we balance our experimental shots to increase the number of simpler experiments that are designed to investigate these particular physics issues. Because these experiments are simpler than “full up” cryogenically layered ignition experiments, we expect to perform more of these experiments in any given shot availability period.

Subcommittee. Dr. Cook, the last report on the National Ignition Campaign states there should be more fundamental work on understanding why the models have not worked so far.

How much of the fundamental model work that you must do in the next phase is resource- intensive and will require more experiments and new diagnostics?

How do you balance experiments for science (ignition) and those necessary to understand the fundamental properties of the weapons stockpile?

Dr. Cook. Improvements in diagnostics are vital to the future viability and productivity of NIF. The development of new diagnostics and experimental techniques has been one of the great successes of NIF. This development occurred through a truly national and international collaborative effort, and maintaining this effort is important to ensuring that NIF is providing the best possible experimental results in the future.

In FY 2013, NNSA has provided guidance that at least 50% of NIF experiments must be in support of the high energy density weapons physics program. These experiments are designed by weapons designers rather than designers from the Inertial Confinement Fusion Program. Often there is a significant overlap between the ignition program and weapons program, but these experiments broaden the base of scientists involved and bring new ideas to the effort.

NATIONAL IGNITION FACILITY – SCAP RATE

Subcommittee. Dr. Cook, the NNSA sent a letter to the lab stating it would begin applying the standard overhead rate for operations at the NIF in FY13. This subcommittee has supported that transition since the previously lower rate simply spread the true cost out to other programs and did not accurately show the true cost of operations.

Have you adjusted the overhead rate, consistent with the direction you provided the laboratory?

What has been the actual cost of operations during the initial stage of the ignition campaign?

How much funding would NNSA need this year to maintain an equivalent pace of operations as during fiscal year 2013?

Dr. Cook. Now that NIF is fully operational, it has transitioned from the lower SCAP rate to LLNL's site-wide standardized indirect rate structure (blended rate) in this fiscal year. The NNSA has identified, planned, and is executing a series of actions necessary to successfully manage the change of the application of the standard overhead rate. This includes two internal reprogrammings totaling \$10,000,000 (one in FY12 and another in FY13) that have already occurred and a larger reprogramming request of \$88M that is in process. Additionally, if sequestration holds, we do plan to revisit and expect the total to be adjusted downward consistent with OMB reductions to our funds via sequester order. An estimate of the actual costs of operations for FY11 – FY13 is shown in the table below.

NIF Operations in Initial Stage of Ignition Campaign (\$M)

	<u>FY2011</u>	<u>FY2012</u>	<u>FY13 Request</u>
LLNL NIF Facility Operations			

ICF Facility Operations and Target Production	156	160	150
User Optics	42	37	34
<i>Total LLNL ICF NIF Facility Operations</i>	<i>198</i>	<i>197</i>	<i>184</i>
Other LLNL ICF Funding			
Ignition	59	59	43
Support of Stockpile Programs	0	0	10
Diagnostics, Cryogenics, and Experimental Support	42	36	33
<i>Total Other LLNL ICF Funding</i>	<i>101</i>	<i>95</i>	<i>86</i>
LLNL ICF Total	299	292	271
LLNL RTBF	150*	146*	138
Total NIF Operations	\$449	\$438	\$409
<p>* For FY11 and FY12, we show what the SCAP adjustment would be for the same buying power as the blended overhead rate applied in FY13 and beyond.</p>			

Any information related to the President's FY 2014 Budget Request is embargoed at this time.

AGING PLUTONIUM

Subcommittee. Dr. Cook, Lawrence Livermore published an article saying that plutonium is aging gracefully, with accelerated-aging samples reaching an equivalent age of 150 years, much longer than previously thought. This is a great accomplishment for stockpile stewardship. We are making significant investments to re-constitute our national capability to remanufacture plutonium pits.

Does this scientific finding have the prospect of further extending the life of our warheads?

Could these findings extend the time until new infrastructure capabilities will be needed?

Dr. Cook. This data is consistent with the findings from the pit lifetime study conducted by LANL and LLNL (and reported in 2006). While we do not have any new concerns, we still have the same gaps in data as we had in 2006. But the lifetimes of weapons have never been limited or dictated by the aging of plutonium, so in themselves, these results do not directly influence LEP decisions beyond considerations of pit reuse or pit remanufacture. Furthermore, the properties of the accelerated aged samples are measured in a non-destructive manner at room temperature and pressure, which does not represent the full range of conditions of the stockpile to target sequence. Thus, the behavior of both fresh and aged plutonium under the conditions of a nuclear primary remains an area of active research, and includes using newer capabilities at the Z machine and the JASPER (Joint Actinide Shock Physics Experimental Research) facility to add new data. Other capabilities at NIF and U1a in Nevada will also provide risk reducing data. The infrastructure required for the plutonium strategy assumes that we will be able to rely on aging stockpiled pits, both in their original configurations (in the W76-1, for example) and in possible re-use scenarios using insensitive high explosives. These results are just one example among many confirming that we can proceed with our current plans with reasonable confidence. These plans include building the infrastructure necessary to support a minimum pit manufacturing capability, nuclear forensics, plutonium disposition, and actinide science.

ADVANCED COMPUTING AND EXASCALE

Subcommittee. Dr. Cook, NNSA has made significant advances in high performance computing. These advances have represented a true national accomplishment and as a result, many Members are very interested in maintaining our lead. Yet, you did not identify an amount of funding in your fiscal year 2013 budget request for the exascale initiative that is being jointly conducted with the DOE Office of Science.

Have you backed off the cross-cutting exascale computing campaign?

Dr. Cook. We continue to work with the DOE Office of Science on future computing systems, including exascale systems. We are jointly executing R&D activities, focusing on critical technologies such as processor/memory technologies, interconnects, power, and resiliency that are on the path to eventual deployment of an exascale system. We are jointly planning high-performance computing (HPC) systems software activities. In the near term, Los Alamos and Lawrence Berkeley National Laboratories are working together on the procurement of the next generation petascale platforms, Trinity and NERSC-8, which will be sited at Los Alamos and Lawrence Berkley National Laboratories for their respective sites. We have initiated joint planning for pre-exascale machines to be deployed in the 2017-8 timeframe. We continue to partner with DOE Office of Science to make the most effective use of government resources in meeting our differing mission needs.

Subcommittee. Does this represent a priority program for NNSA? How does the exascale effort fit into the goals of the NNSA's advanced computing?

Dr. Cook. We recognize the importance of exascale and await its availability to resolve some particularly tough stockpile stewardship questions. The pace at which exascale capabilities are achieved will be dependent upon the level of resources made available to the effort. The NNSA is balancing many competing priorities, as is the Advanced Simulation and Computing Campaign. Today's priorities are focused on LEPs and design studies. The NNSA need for exascale is a longer term priority. While the Stockpile Stewardship Program will benefit from the early availability of exascale computers, our current funding priorities do not provide for their accelerated development.

MANAGEMENT REFORMS

DEFENSE PROGRAMS REORGANIZATION

Subcommittee. Dr. Cook, we've heard that you intend to reorganize the Office of Defense Programs.

Why is a reorganization needed and what kind of improvements you are proposing?

Dr. Cook. With the establishment of NA-00 in 2012, functions and personnel who primarily provided support to field infrastructure and operations were realigned from NA-10 to NA-00. With this change, NA-10 is now poised to be able to focus its resources to effectively manage its program scope, cost, and schedule in order to achieve important commitments to the Nation. DP intends to make staffing and organization changes that will result in a more effective program management structure.

Two new subordinate organizations will be established within NA-10. An office will be established to implement effective systems engineering policies and processes to increase the quality of program management. The office will implement a requirements management process and a disciplined systematic approach to implementation and integration of programmatic activities within the DP organization.

A second office will be established to provide program management for modernization of the nuclear stockpile and key capabilities. The Office will develop, direct, and oversee the activities related to the life extension programs (LEPs) of the nuclear weapon stockpile and the associated modernization of key science and manufacturing capabilities required to maintain the stockpile. The creation of this office provides additional focus on major modernization efforts both for weapon systems and key capabilities, such as plutonium and uranium.

Subcommittee. Would this require expanding the federal workforce and if so, how many people are needed?

Dr. Cook. At present, there is no estimate for additional federal resources that may be needed.

Y-12 AND PANTEX COMBINED M&O CONTRACT

Subcommittee. Madam Administrator, you are still in the process of awarding a combined contract for operating both the Y-12 and Pantex sites. NNSA previously said independent estimates suggested that \$1.15 billion could be saved through the merger. The media has reported one team estimated it could save \$3.27 billion over the potential 10-year life of the \$22.8 billion contract.

Now that you received three bids, do you think that you will save as much as you claimed?

Administrator Miller. Although the contract award is currently under an automatic stay while bid protests are being decided by the GAO, this new business model puts NNSA in a position to improve mission delivery by generating significant savings that will be reinvested to improve safety, security, quality, and infrastructure over the next ten years. I cannot say exactly how much savings will ultimately be achieved because mission delivery is the more important thing. Nevertheless, the savings will be significant.

Subcommittee. How will these savings be generated?

Administrator Miller. I cannot discuss much in terms of specifics as this is a competitive procurement currently under protest in front of the General Accountability Office.

The proposed savings profile will be incorporated into the Contract through the contractor's Merger Transformation Plan. This plan will include the contractor's Management Approach and Cost Savings which was submitted by the contractor in its proposal for purposes of evaluation for award. The plan will be provided to the Government within 60 calendar days of the time when contract performance proceeds (which is only after all bid protests are adjudicated), and will be incorporated into the Contract following Contracting Officer approval. After incorporation into the contract, the plan will be available.

PROJECT MANAGEMENT REFORMS

Subcommittee. Madam Administrator, as recently as this past December, the GAO released another report saying that NNSA's project management of even small projects needs improvement. If NNSA is unable to track the performance of even its small projects, there is little assurance that improvements are being made in your ability to manage the much more complex nuclear projects you are undertaking like the Uranium Processing Facility.

Can you tell us of any accomplishments that you've made in project management that you believe will lead to improved project performance?

Administrator Miller. Ongoing criticisms from external stakeholders continue to focus on major projects for which construction budget baselines were established prior to the current Administration, for example, the National Ignition Facility (construction started 1997), the Highly Enriched Uranium Materials Facility (construction started 2004), and the Mixed Oxide Fuel Fabrication Facility (construction started 2007). Nevertheless, the Department has made significant progress in project performance for non-major projects, as follows:

- Of projects completed between 2007 and 2012, about 62% (24 out of 39) were delivered on time and on budget;
- Of projects completed since 2006 in which the construction budget baseline was established after 2006, 86% (12 out of 14) were delivered on time and under budget. These 14 projects having a combined budget of \$849 million were delivered 8% under budget.

To continue institutionalizing these improvements, NNSA created the Office of Acquisition & Project Management (NA-APM) in 2011 to focus project management for major capital projects within a single office. This office delivers capital projects by serving as the program owner's rep, in concept similar to the U.S. Army Corps of Engineers. NA-APM is actively improving processes and procedures applicable to capital project oversight:

- The Federal Project Directors responsible for project delivery were reassigned to NA-APM, and are involved earlier in project planning and development.
- NNSA is establishing Project Management Offices (PMO) reporting directly to the Federal Project Directors staffed with personnel possessing appropriate construction project management skills. PMOs are currently being stood up for our two biggest projects: the Uranium Processing Facility project at the Y12 and Mixed Oxide (MOX) Fuel Fabrication Facility project at Savannah River.
- Last year NNSA awarded the Enterprise Construction Management Services (ECMS) contract to help standardize project management processes across the Enterprise like project estimating, monitoring and tracking of costs, and to provide Subject Matter Expertise on an as needed basis.
- NNSA is better aligning contract incentives for Capital Asset Projects consistent with Deputy Secretary Poneman's December 2012 letter, specifically:
 - Improving requirements definition ensuring adequate facility design maturity prior to forming project budget baselines, particularly for complex, unique nuclear facilities. The past practice of establishing baselines too early in design maturity added significant risk to the Agency's ability to deliver projects on time and within budget, harming the Department's external reputation.
 - Structuring contracts so that each party bears responsibility for its own actions, rewarding contractors for generating savings or gains while protecting the taxpayers from paying for contractor negligence;
 - Selecting contract types that provide an equitable balance of risk with a preference for fixed price contracting for general construction;

- Maximizing the use of objective performance measures where fixed-price contracts are not deemed to be in the best interest of the Government;
 - Ensuring that performance measures link all or a substantial portion of the fee to the achievement of final outcomes rather than interim accomplishments;
 - Refusing to carry unearned fee forward to future years unless the Government receives ample consideration, for example, the contractor agrees to cost ceilings or to cost sharing on any further overrun; and
 - Documenting contractor performance and using this information as a significant factor in future contract selections.
- Finally, NNSA is ensuring that the Agency receives the best value for capital asset projects by deciding whether to allow the site contractors to self perform the work, outsource the work to construction experts like the Army Corps of Engineers, or compete and award our own separate Federal prime contract with an eye toward maximizing small business participation.

LAB STAFFING LEVELS

Subcommittee. Madam Administrator, several NNSA sites are carrying out separation plans for laboratory employees this year. The recent announcement for Nevada stated its separation plan was needed because the current workforce skills are not appropriately matched with future needs. This subcommittee has already directed NNSA to develop a critical skills workforce baseline for its contractors, consistent with a recommendation from the GAO on this issue.

Are you doing an analysis of which workforce skills you need and when should we expect to see those results?

Administrator Miller. Yes, the current version of the Stockpile Stewardship Management Plan (SSMP) is currently in review with an expected delivery shortly. Chapter 6 (Sustaining the Workforce) includes analysis of the NNSA's contractor workforce skills needed.

Subcommittee. How do the NNSA laboratory and site workforce need to transform to meet future mission needs?

Administrator Miller. The NNSA workload varies from year-to-year due to changes in work scope and changes in throughput. The substantial majority of the NNSA M&O contractor workforce supports the weapons program. Of those supporting the Weapons Program, 58 percent have skills considered "essential" to the weapons program. To date, NNSA M&O contractors have been able to recruit and replenish the skills that are considered essential. Challenges exist, however, for future recruitment and retention of the necessary skilled workforce. With prudent planning and adequate resources, NNSA is confident these challenges will be met. One of the primary responsibilities of the M&O contractors is to manage their staffs to accommodate the variable workload. Managing the staff means being able to recruit, develop and sustain skill sets in the work force for the nation's needs as well as being able to de-staff, when required. Balancing the staffing will be addressed in the forthcoming SSMP.

Subcommittee. Do you anticipate additional voluntary or involuntary separation plans being needed to redistribute skills and meet future needs?

Administrator Miller. Beyond the Nevada de-staffing to match future needs, NNSA does not anticipate additional widespread involuntary separations. However, there may be voluntary separations forthcoming at one or more sites. In any event, should additional separations, voluntary or involuntary, prove to be necessary, the M&Os will manage their staffing accordingly, assuring essential skills and personnel are retained.

INFRASTRUCTURE

ALTERNATIVE PLUTONIUM STRATEGY

Subcommittee. Dr. Cook, in the fiscal year 2013 budget request, you announced you would delay the CMRR-Nuclear Facility at Los Alamos by five years. Since then, you've submitted a reprogramming request to begin work on an alternative plutonium strategy.

Can you explain where you are at with your planning? What does an alternative plutonium strategy look like?

What decisions will drive any future capability needs? We don't produce new pits for the stockpile now, but do we need to start producing new pits at a particular rate?

The Nuclear Posture Review established a timeframe for building the CMRR-NF which was not realistic. When do the new capabilities need to be in place and why?

Dr. Cook. The NNSA remains committed to ensuring continuity in the capabilities needed for the entire lifecycle of plutonium. In September 2012, we submitted a request to the NNSA oversight committees to reprogram \$120M in prior year appropriated CMRR project funds. Approval of the reprogramming request will allow us to execute critical near term investments to maintain our analytical chemistry and materials characterization capabilities and to analyze options to accelerate delivery of needed future plutonium capabilities in Technical Area (TA)-55 at Los Alamos National Laboratory (LANL). Each question is addressed below:

To date, we have partnered with Los Alamos National Laboratory and other sites to prioritize initial investments needed to maintain our capabilities. Although we are confident in our understanding of the near-term actions and investments, our long-term options need further analysis to mature the strategy into a resourced plan. To date we have produced three studies related to plutonium capability needs—from April to July, 2012—and a draft Defense Programs Plutonium Planning Summary, which your staff received in January, 2013.

The 120-day Study explored the concept of pit reuse as outlined in the NPR and the design laboratories are optimistic that a combination of pit reuse and newly manufactured pits will support future stockpile needs. As a result of the study and estimated capacity constraints, NNSA's pit manufacturing goal is to achieve a blended production capacity featuring pit reuse up to a rate of 90 pits/year in combination with up to 30 newly manufactured pits/year. Supporting warhead life extensions requires immediate and sustained investments to achieve a manufacturing rate of 30 pits/year by 2021.

NNSA will cease program operations in the original Chemistry and Metallurgy Research (CMR) facility in approximately 2019. Initial investments to begin the transition of workload from the CMR facility requires immediate investments in analytical chemistry and materials characterization capabilities that are outlined in the reprogramming request, and these activities are necessary regardless of CMRR-NF deferral in order to ensure there is no gap in our plutonium capability after 2019.

DEINVENTORY OF NUCLEAR MATERIALS AT LAWRENCE LIVERMORE

Subcommittee. Dr. Cook, the NNSA has now met its goal to remove all Category I nuclear material from Lawrence Livermore National Laboratory by October 2012. However, because of the space limitations at Los Alamos and the work that is now required to support pursuit of full scope life extension programs, NNSA is looking at reintroducing Category I nuclear materials in the future on a limited basis to support stockpile needs.

What are the NNSA plans in using Superblock for future operations involving Category I nuclear materials?

Dr. Cook. At present the capability at to perform full scale environmental tests only exists at Lawrence Livermore National Laboratory (LLNL).. This equipment is used to test the vibration, shock, thermal stresses and other environmental insults to nuclear components that are typical during their life cycle (example: effect of flight dynamics on nuclear components).

In 2012, LLNL completed de-inventory of Superblock to Security Category III levels. There are no plans to 're-inventory' LLNL. In a 2008 Record of Decision, NNSA announced the decision to move the environmental test equipment to Pantex, but, to date, other activities (such as deinventory) have taken higher priority. Therefore, NNSA has been working with LLNL to establish a mechanism to continue to periodically use Superblock's test facilities for upcoming LEPs as a contingent capability if such data are needed before the capability can be transferred to Pantex. If a qualification experiment is required, it would involve transporting a pit to LLNL for a very short duration (approximately one week). During the duration of the experiments, Superblock's security posture would be elevated to (security) Category I. For planning purposes, the frequency of qualification tests assumed is one every other year for the duration of a phase 6.2/6.2A through 6.4 activity (approximately eight to ten years).

Although no decision has been made to execute such decisions, we are working with LLNL to plan responsibly and prudently to ensure these capabilities are available, if required.

Subcommittee. Now that the materials are removed and security personnel are being permanently let go, how can NNSA ensure that this facility can be used safely and with proper security on a temporary basis?

Dr. Cook. Should NNSA determine that periodic testing of Category I materials at LLNL is required, a site-specific security plan will be developed that employs security personnel from other sites. The security approach would be fully tested and exercised prior to deployment.

Subcommittee. Can you do that work at other facilities that are actively managing Category 1 nuclear materials?

Dr. Cook. The FY2008 Record of Decision identified Pantex as the preferred site for nuclear qualified environmental testing, but the equipment has not yet been moved.

Subcommittee. How will NNSA ensure that the public is kept informed about the use of this facility and whether proper safety and security precautions are being taken?

Dr. Cook. Security considerations necessitate that the public is not informed of the specific dates of Category I use of Superblock. Superblock operates under a safety basis which will be reviewed prior to the recommencement of Category I operations and has a decades-long record of safe operation in nuclear weapon pit surveillance, development, and the measurement of environmental effects.

TOTAL COSTS OF OPERATING THE WEAPONS COMPLEX

Subcommittee. Madam Administrator, the GAO has reported that NNSA is often unable to determine precisely how much it costs to operate and maintain its infrastructure. At \$7 billion per new facility, we cannot afford to simply rebuild every aging building, but must be able to maintain our existing facilities to ensure they are safe environments for our workers. The fiscal year 2013 budget request for NNSA infrastructure contained a convoluted new structure for infrastructure funding. When all the vague funding categories were stripped away, it was clear that NNSA was actually cutting the amount of funding it spent on addressing deferred maintenance.

What reforms have you made to improve your understanding of the costs of operating NNSA facilities, including any changes to the structure of your budget request?

Administrator Miller. The new budget structure and associated details about the costs of operating NNSA facilities are provided in the President's FY2014 budget request to the Hill.

Subcommittee. Will you be following the committee's direction for more attention on maintenance?

Administrator Miller. Yes, as previously recommended by the committee, the new budget structure will enable NNSA to provide the enhanced focus and prioritization on directly funded maintenance activities at our sites. The revised budget structure are provided in the President's FY 2014 Budget Request to the Hill.

SAVING COSTS

LABORATORY DIRECTED RESEARCH AND DEVELOPMENT (LDRD)

Subcommittee. Dr. Cook, LDRD has been strongly supported as necessary to retain the best and the brightest and to maintain the laboratories' intellectual vitality. The latest study into the health of science at the DOE labs reaffirmed the benefits, but did not recommend an overall level of funding that would be needed for LDRD.

Since spending has gone up for the NNSA labs over the last three years, the amount of funding available for LDRD has also gone up. Congress allows NNSA labs to spend up to 8% on LDRD, higher than at other DOE labs where the cap is only 6%. DOE labs have been successful in attracting and retaining excellent personnel.

Do NNSA labs still need a higher percentage of funding for LDRD than other DOE labs to maintain their vitality?

Can we find funding for stockpile needs by reducing the amount of LDRD at the NNSA labs to the same amount allowed at other DOE labs?

Several years ago, the NNSA committed to ensuring that LDRD activities had a strong relationship to mission needs. Have you done this? What is the process for approving LDRD projects?

How might a reduction in the LDRD percentage impact the cost of a major program like the B61 life extension program - which relies heavily on work from Sandia, which happens to spend the most on LDRD?

Dr. Cook. The Office of Science and NNSA labs differ fundamentally in the need for LDRD funding for laboratory vitality. LDRD is meant to support discovery science and technology that is too early in development to be supported within mission program funding. The primary mission for Office of Science labs is to engage in a broad mix of discovery and mission R&D; that of the NNSA labs is to care for the nation's nuclear stockpile, and is thus very mission driven R&D. Consequently, the NNSA labs require more "directed" funding to maintain similar vitality. Having a strong basic research program has been, and continues to be, an enormously

successful recruiting tool for attracting top, young scientists to the nuclear security mission.

Before being approved for funding, all proposed projects are put through a rigorous peer review process at each NNSA laboratory. Those deemed worthy of funding are sent for approval to the federal site office, which makes a final determination on mission relevance before each lab is given approval to proceed.

Once exempt programs are taken into account, the NNSA laboratories have historically spent only 6% - 7% of their budgets on LDRD. The level of LDRD funding is determined by each laboratory director, up to the maximum allowed by law, by continually balancing the support needed for the core mission competencies against day-to-day mission workloads.

CONTRACTOR FOREIGN TRAVEL

Subcommittee. The DOE IG reported in October that up to \$15 million per year in savings could be had if the Department extended the same policy it has implemented to reduce Federal employee travel by 30 percent to its contractor workforce.

Now that these savings have been identified, is there any action being taken by the NNSA to reduce costs associated with contractor travel?

Administrator Miller. The NNSA effectively reduced contractor travel costs between 2011 and 2012 by roughly 10 percent, despite a significant increase in its nuclear security efforts to meet the President's goal of securing all vulnerable material around the world by 2013. We have vigorously advocated the use of less costly non-refundable airline tickets, and implemented a comprehensive process for reviewing all conference attendance which has significantly reduced costs by limiting participation, employing best practices, and cancelling or consolidating conferences. Inasmuch as travel costs are a significant component of total conference expenditures, these actions are dramatically reducing travel costs for both contractor and Federal employees.

To further improve management of travel expenditures, NNSA is participating with the Department in an in-depth analysis of contractor travel costs, particularly foreign travel, to identify potential cost efficiencies and management best practices. The findings of this review will be used to formulate a comprehensive cost management strategy that balances our vital national security mission and our commitment to be responsible stewards of taxpayer funds.

CONTRACTOR PENSIONS AND HEALTH CARE COSTS

Subcommittee. Madam Administrator, Congress enacted legislation this year in order to reform the law pertaining to defined benefit pension plans, providing temporary relief to these rapidly escalating costs. We understand that these changes should have a large impact on the amount of funding required this year.

How will the legislative changes impact the amount of funding needed in fiscal year 2013 for NNSA's contractor pension plans?

Administrator Miller. In January 2012, NNSA contractor pension plan contributions during fiscal year 2013 were estimated to total approximately \$1.1 billion. After the enactment of Moving Ahead for Progress in the 21st Century (MAP-21), August 2012 estimates decreased by approximately one-half to roughly \$500 million. It should be noted that although MAP-21 reduced minimum required contributions in the short-term, it does not provide relief from long-term pension obligations. In order to minimize volatility and reduce the impact that post-MAP- 21 projected funding spikes will have on mission accomplishment beginning in fiscal year 2015, NNSA is currently evaluating alternative funding profiles for fiscal years 2013 and 2014 that will allow reimbursement of contribution amounts above the minimum required by law.

Subcommittee. What steps is the NNSA taking to ensure that all possible contractual mechanisms are in place to ensure NNSA can control or at least influence of pension costs? Are there contract clauses that could be included in the new site contracts?

Administrator Miller. The NNSA has contract language in all current M&O contracts that specifies the amounts reimbursable for pension plan contributions. The language states, "[t]he Contractor will be reimbursed for pension contributions in the amounts necessary to ensure that the plans are funded to meet the annual minimum required contribution under ERISA, as amended by PPA....[r]eimbursement above the annual ERISA required minimum contribution will require prior approval of the Contracting Officer." This language helps determine contribution amounts in the best interest of the NNSA. This language is included in all new site contract solicitations. Further, to assist us in determining the reasonableness of offered benefits, the contractors are required to demonstrate that the value of

employee benefits they provide do not exceed by more than 5% those provided by companies against which they compete for talent, though NNSA site offices have the authority to waive that requirement. However, all NNSA contractors are within the allowable threshold or are on track to get within the threshold, except for grandfathered employees at Los Alamos National Laboratory and Lawrence Livermore National Laboratory. This information on benefits is collected through an employee benefits value study, required under every M&O contract.

Subcommittee. Along with pensions, additional benefits such as health care costs look to be on a similar trajectory in terms of large out-year costs. What is the NNSA doing to get a handle on these costs?

Administrator Miller. NNSA contractors have been working diligently to curb rising health care costs. For example, contractors have increased employee contributions to healthcare premiums, reduced the number of healthcare providers, joined exchanges and moved to Consumer Driven Health Plans that encourage employees to become better healthcare consumers. Where contractor benefit costs have exceeded industry benchmarks, NNSA has challenged our contractors to take action to better align costs with those benchmarks.

KCRIMS

Subcommittee. Dr. Cook, the NNSA argued that the KCRIMS project would save \$100 million per year. Construction of the building is now complete but funding requirements for operating the Kansas City Plant continue to grow as the government now pays for both the old and new facility during the transition of operations.

When will we begin to see these savings? Will you still attain the \$100 million per year savings in operating costs that you claimed?

Dr. Cook. The KCRIMS project is on schedule for completion. KCRIMS is expected to reduce the KCP footprint by half, that is, from the existing 3.1 million gross square feet floor space to 1,407,600 rentable square feet including the National Security Manufacturing Complex.

We have already realized \$218 million in net savings. Estimated annual savings by the end of FY13 is projected to be \$107M and is projected to exceed \$175M by the end of FY16. Cost savings have already been incorporated into the KCP's annual budget requests. As an example, the FY13 budget request would have been \$107M higher if the KCRIMS initiative had not been executed.

Subcommittee. When will the move be complete and are you on track with your original schedule?

Dr. Cook. The KCRIMS relocation is expected to be complete by August 2014. The project is on track per the original schedule.

Subcommittee. How do you expect the move to impact production of the W76 LEP? Will you be able to maintain production rates as planned?

Dr. Cook. There should be minimal to no impact on the W76 LEP production schedule. We have developed mitigation strategies including component pre-builds, and schedule contingency in the production schedule to avoid impacting the W76 production or the KCRIMS relocation. Through FY2014, the current facility will continue to support the NNSA mission after which full production support transitions to the Botts Road facility. This should enable us to maintain the planned production rates.

Subcommittee. What is the plan for remediation of the existing site and which organization will take responsibility for the site – Environmental Management or NNSA? How will this be budgeted for in the future?

Dr. Cook. Upon completion of the relocation of NNSA operations to the new facility, the focus at the existing site will shift to activities necessary to disposition the surplus real and personal property at the Bannister Federal Complex. Planning for current facility disposition is in development. The funding profile included in the FY 13 budget for FY2014 through FY2018 does not include disposition of Bannister Facility. No decision will be made on a disposition alternative until an appropriate National Environmental Policy Act analysis has been completed.

Manufacturing operations at the current location will cease in late FY 2014. Maintenance and surveillance activities necessary to maintain and prepare the vacated facilities for sale or transfer will continue through FY 2015, during which excess process equipment removal and facility preparations will be completed. To prepare the NNSA property for sale or transfer, NNSA is pursuing the DOE's process for transfer of property for the purposes of economic development. If by the third quarter of FY 2013 there is no qualifying reuse proposal received, NNSA will follow normal asset disposition processes and studies used by the General Services Administration to transfer the property to a new federal or non-federal entity. NNSA will, however, continue to meet environmental requirements for long term stewardship of the site until final disposition of the site.

QUESTIONS FROM CHAIRMAN FRELINGHUYSEN**STOCKPILE REDUCTIONS**

Chairman Frelinghuysen. Madam Administrator, we are already in the process of reducing our nuclear stockpile down to the New START treaty levels. The President has stated that he wants even greater reductions, perhaps below even 1000. Some argue that we could save billions of defense dollars by reducing the numbers of nuclear weapons significantly. They've also questioned why we would spend all this money on weapons that we will never use. While I disagree with this view, I'd like to hear your view. These weapons are a vital part of our nation's defense and they are essential to meeting our commitments to our allies.

Do stockpile reductions save any money at all in this budget?

Administrator Miller. The FY 2013 budget does not contain appreciable savings from stockpile reductions associated with New START. The marginal NNSA cost to maintain an individual weapon is small in comparison to the overall requirements of the nuclear security infrastructure and base capabilities for research, development, evaluation, production, and assessment. The work performed by our laboratories and production plants is even more critical as the stockpile gets smaller. Each design, each component, each test carries more importance due to reduced stockpile numbers over which to spread the results.

Chairman Frelinghuysen. If the President were to see this vision through, what does that mean to the work we must do to maintain the stockpile? Would we start closing labs and losing staff now since they would not have as many weapons to take care of?

Administrator Miller. The vision outlined in the 2010 Nuclear Posture Review is for all future LEPs to consider the possibility of using the life-extended warheads on multiple delivery platforms, and thus reduce the number of warhead types, will provide cost avoidance due to the need for fewer LEPs in the future. Maintenance cost as mentioned above would not change appreciably. There are no plans to close any of the three national laboratories. Regardless of stockpile size, the three labs each play a vital role in our ability to certify the safety and health of the nuclear weapon stockpile.

Chairman Frelinghuysen. Is there a cost of going small? Can you explain these costs to members?

Administrator Miller. The deterrent value of each individual weapon increases proportionally with reduction in the total stockpile. It is therefore essential that the NNSA provide the President and the nation confidence in the effectiveness of those weapons that remain without nuclear testing as well as continue to implement the Administration's nuclear modernization program, including planned Life Extension Programs. To provide that confidence, it is essential the Administration and Congress continue in partnership to strengthen the science tools of Stockpile Stewardship, revitalize the infrastructure, and extend the life of the remaining stockpile.

Chairman Frelinghuysen. Some have categorized the increases to the Weapons Activities account over the last two years as a result of a deal to ratify the New START treaty. Would we need these funding increases even without the New START treaty?

Administrator Miller. New START put the spotlight on challenges facing the vital program with the Weapons Activities account. While we would need these investments without New START, the treaty highlighted the priority and urgency of many essential programs.

SEQUESTRATION

Chairman Frelinghuysen. Madam Administrator, I would like to start with the topic that is on everyone's mind right now as the deadline for sequestration grows near. Our committee has fought hard to return to regular order and pass thoughtful legislation that reflects the priorities of our nation. But instead, we are faced with the prospect of across the board spending cuts and Members need to understand the impact these cuts will have on our priority programs.

Can you state for the record, what are the impacts to the NNSA's operations, and how will sequestration change the plans for modernizing the stockpile and its associated infrastructure?

Which programs will be most affected?

Have you received any guidance from the Office of Management and Budget on how to apply the sequestration cuts?

I personally believe that sequestration will be implemented and that we will be facing a full-year CR. The Committee has provided you with broad reprogramming authority to make changes you may need between activities, but that approval can take some time to make it out of the Administration and through Congress.

In order to ensure that necessary funding is available when it is needed, are you developing a reprogramming request to move funds around for critical programs?

Have you identified which activities may need to be decreased in order to ensure the highest priority programs stay on track?

Administrator Miller. As you know, the Secretary has previously stated, sequestration would affect thousands of jobs and reduce the Department's ability to serve the American people. Since these cuts start after five months into the current fiscal year, it forces the Department to absorb the spending reduction in a seven-month period. Under the current law, the NNSA is constrained with a 7.8% cut at the Congressional budget control point levels. More specifically, under sequestration the level for the Weapons Activities appropriation is nearly \$600M below the FY 2013

President's Budget, and more than \$200M below the FY 2012 enacted level. We understand the current law to take this cut from the FY13 CR levels—the Weapons Activities account has an anomaly allowing it to operate at the FY13 President's Budget request. Since the sequestration applies to each program, project, and activity (PPA) level within each appropriation account, this will severely restrain our ability to prioritize and make tradeoffs among activities under reduced funding scenarios, which withholds essential discretion from the Department and the NNSA to effectively meet our mission.

We have received guidance from the Office of Management and Budget on how to apply the sequestration cuts, starting as far back as January 14 and as recently as March 1, 2013. We are utilizing all guidance from OMB as well as the anomaly in the Weapons Activities account allowing operations at the FY13 President's Budget request level. In short, we are employing all available flexibilities including an omnibus reprogramming in development to reduce operational risks and minimize impacts on the agency's core mission in service of the American people and the national security. With that said, up to 18,000 contractor jobs could be impacted through either work hour reductions or other personnel actions, depending on how our contractors implement the cuts locally.

ACCOMPLISHING THE GOALS OF THE NPR

Chairman Frelinghuysen. The Administration pledged to modernize the Nuclear Security Enterprise over the next several years, announcing in 2011 that it would invest \$85 billion over the next decade. This subcommittee questioned whether those budget plans were credible and affordable, given a history of poorly managed construction projects and life extension programs that have led to enormous cost growth from their original estimates. The Budget Control Act has now placed additional limitations and it is not yet clear whether this strategy will be affordable.

Does the Administration intend to pursue the same goals of the 2010 NPR with less funding under the Budget Control Act, even as costs are ballooning for the major initiatives like the B61 LEP and the Uranium Processing Facility?

Dr. Cook. Yes. The Administration has not changed the goals described in the 2010 NPR Report, but we are working with our Department of Defense partners to modify some timelines and implementation plans in accordance with overall budget priorities.

Chairman Frelinghuysen. Or will this budget environment require fundamental changes in defense requirements or concepts of deterrence?

Dr. Cook. We will continue to work with the Department of Defense to support their requirements and concepts of deterrence. Working with the Nuclear Weapons Council, we have modified some timelines and implementation plans, but we have not needed to make any fundamental changes from the goals described in the 2010 NPR Report.

Chairman Frelinghuysen. If so, when will the Administration propose these changes?

Dr. Cook. If the need for changes is determined in the future, we will propose them in a timely manner.

Chairman Frelinghuysen. Will there be challenges to maintaining the stockpile in the meantime?

Dr. Cook. There will always be challenges to maintaining our aging stockpile, but through use of stewardship tools and planned infrastructure investments, we do not anticipate any of our known challenges to be insurmountable.

W76 LIFE EXTENSION PROGRAM DELAYS AND COSTS

Chairman Frelinghuysen. Dr. Cook, you have admitted that the amount that was requested in the 2013 budget request would be insufficient to meet production goals for the W76 LEP. The DOE Inspector General investigated the program and confirmed that the budget planning was not realistic and that NNSA would need to reduce its costs considerably. Unfortunately, the IG also found that NNSA could not show it had a credible plan to do so.

Why did NNSA request an amount known to be insufficient in 2013? Why didn't your budget process identify the correct amount of funding required for W76 production goals?

Dr. Cook. In March of 2012, the Nuclear Weapons Council (NWC) issued direction for an adjustment in the production rate of the W76-1. Due to the complexity of the program and operating requirements to perform production, a significant amount of fixed costs are associated with the program. The fixed cost versus incremental cost impacts were not appropriately accounted for which led to the error. This number was not clearly understood to be insufficient without a data call from the plants, prior to submission of the budget request. After a separate division within the Office of Defense Programs performed an independent cost analysis, it was confirmed the FY2013 budget requirements originally requested for the W76-1 LEP were incorrect.

Chairman Frelinghuysen. How much do you expect costs will rise from the levels requested in the FY13 President's Budget Request?

Dr. Cook. Requirements above the FY 2013 Request total roughly \$65M. This will restore the capability of NNSA to achieve the required production.

Chairman Frelinghuysen. The current CR provides you with funding at the FY13 overall request level. What amount will you really need in FY13 and will you ensure this amount is provided through reprogramming?

Dr. Cook. NNSA is examining available options to fund the W76-1 program to adequately address all production costs for FY2013 goals. If a

reprogramming request is deemed the best option, NNSA will provide the Committee with all necessary information.

REDUCING THE COSTS OF THE W76 LEP

Chairman Frelinghuysen. Dr. Cook, Navy officials have testified that they are already worried about the production plans because there is almost no margin for error in the schedule.

If per unit costs cannot be reduced further, what is your contingency strategy for meeting your commitments to the Navy?

Dr. Cook. Staffing requirements and plant capacities have been aligned to the new production requirements based on the directed re-baseline of the W76-1 LEP from the Nuclear Weapons Council in March 2012, which extended the production period to FY2021. The program has also reached full rate production quantities (i.e., steady state production). Program cost analysis has indicated there are cost savings realized as a result of efficiencies from the mature production process and the larger annual production quantities which are consistent with Navy requirements.

Chairman Frelinghuysen. Will you identify other funding to meet the original schedule or would NNSA be forced to stretch out the production schedule?

Dr. Cook. In March 2012, the Nuclear Weapons Council (NWC) proposed a change to the production quantity and schedule which upon agreement, NNSA implemented through a baseline schedule change moving the scheduled completion from ending in FY2018 to FY2021. After carefully considering the impacts of this proposal, NNSA responded to the NWC and changed the schedule reflecting this new production baseline. NNSA is confident that we will meet the new production schedule with the funding currently requested.

Chairman Frelinghuysen. Is there a potential for a major change in the production requirements for the W76 LEP in the next few years?

Dr. Cook. In March 2012, the Nuclear Weapons Council (NWC) proposed a change to the production schedule which upon agreement, NNSA implemented through a baseline schedule change moving the scheduled completion from ending in FY2018 to FY2021. Another change to the production schedule and quantity has been proposed by the NWC in December 2012. As in the previous change, NNSA is carefully considering

the impacts of this proposal and formulating a response to the NWC indicating our ability to implement this new production baseline. NNSA is confident that we will meet the new production schedule with the funding currently requested.

Chairman Frelinghuysen. Have you made any progress on developing a program-wide plan to reduce costs as recommended by the DOE Inspector General? How will you go about seeking additional cost savings?

Dr. Cook. Program costs are now stabilizing due to the resolution of technical problems encountered during the early years of production. Staffing requirements and plant capacities are aligned to the new production requirements established by the Nuclear Weapons Council's proposed change from March 2012, extending the production period from FY2018 to FY2021. In addition to this enhancement, the program has now reached full production rate quantities (i.e., steady state production). Based on these factors, the program cost analysis indicates realized cost savings because of efficiencies inherent in a mature production process and somewhat larger annual production quantities; we have factored these efficiencies into our FY14 budget request.

SECURITY REFORM AND THE Y-12 SECURITY INCURSION

Chairman Frelinghuysen. Madam Administrator, we expect to conduct a hearing specifically on security at a later date. However, I would like to discuss at a management level what NNSA is doing to address the systemic flaws that were exposed by the summer's Y-12 incident where three protestors, including an 82 year-old nun, breached the security at Y-12 and were able to make it to the wall of the facility that houses our nation's stocks of highly enriched uranium.

Would you discuss what failed at Y-12? How could this have happened?

Administrator Miller. First and foremost, the Y-12 incident was caused by a failure of management at multiple levels within the M&O contractor, the NNSA (both locally and at headquarters) and within the larger department. This failure was completely unacceptable and we have held individuals and companies accountable. We removed the President, the Chief Operating Officer, and the Senior Vice President of Security of B&W Y-12. Two Senior Vice Presidents of WSI, the security contractor and their Division Director for Protective Services were also removed. We removed and reassigned three of the top NNSA federal security officials at headquarters and two NNSA Field Office personnel. The security contract was subsequently subordinated to ensure unity of command and then eventually terminated.

Our internal review found that expectations were not clear, communications were fractured and management at many levels hesitated to challenge the status quo. This muddled operating environment, coupled with a belief that "it cannot happen here" contributed to a culture of complacency and a normalization of deficiency that eventually led to the failure. Specifically, there were a high number of assessment cameras and other intrusion detection equipment that were not functioning or not operating to specification that were not being repaired or replaced with an appropriate sense of urgency. We had convinced ourselves the compensatory measures put in place to compensate for these deficiencies made this an acceptable practice. In fact, the compensatory measures on a one for one basis may actually have been adequate but, given the high number of system components that were out of commission they left us vulnerable and contributed to the inadequate security culture. We had become numb to the situation and accepting not only of the sheer number of components that

were out of commission, or in a reduced operating condition, but we had lost the sense of urgency with respect to driving their repair or replacement.

We had also become numb to the incredible number of false and nuisance alarms at the Site. Numbering in the hundreds per day, these alarms no longer elicited their intended response but rather got put on a list. Once again, management failed to recognize the operational and cultural impact this was having on the security forces. Security personnel spent full shifts clearing false alarms. This contributed to the lack of response as our security personnel were virtually desensitized to alarms.

As we have said before, the Y-12 incident represented management failings at many levels within NNSA, and we are committed to learning from it and continue to drive expectations throughout the enterprise for safe and secure operations of our Sites.

Chairman Frelinghuysen. How is the Department changing its security posture, protocols and staffing to ensure the NNSA does not have a similar failure again?

Administrator Miller. NNSA is committed to driving improvements across the enterprise. The Y-12 incident has provided clear impetus for modernizing our security operations and we are actively implementing wholesales changes to how we conduct security operations.

Following exhaustive post-event analysis, we have begun work to correct contributing factors that led to the failure. We have greatly reduced equipment repair/replacement times, installed additional concertina wire, installed additional rabbit fence to reduce animal incursion into the PIDAS which was a major contributor for nuisance alarms, and completed work on the new Central Alarm Station at Y-12.

In addition to dealing with some of the more obvious contributing factors above, we have also taken action to improve overall management for security within NNSA. We have, as recommended by the Finan report, modified the operational model for security oversight. As noted in the Finan report, communications and chain of command protocols were unclear. The Chief of Defense Nuclear Security (CDNS) previously not only set security policy and strategy but also managed, on an ad hoc basis, daily tasking of both federal and contractor personnel at the site. In many cases, this tasking

was informal and not coordinated with senior contractor or site office leadership. The communications were stovepiped within the security community, and did not always include senior contractor and federal leadership on the facilities. This resulted in confusion at the site and made it challenging to hold the NNSA Field Office Manager or senior contractor management accountable for all aspects of operations at the site due to their lack of knowledge of CDNS direction.

The new model, recommended by the Finan report and adapted by the NNSA, establishes clear roles and responsibilities for security and will serve as a model for all functional areas. The CDNS remains the head security official for NNSA and will continue to set strategy and policy for NNSA. They are developing a more responsive and robust assessment program to ensure that the enterprise is complying with those policies and to validate security performance for NNSA.

The Infrastructure and Operations organization (NA-00) which is comprised of the NNSA Field Offices and was created in late June 2012 will be responsible for providing consistent security oversight across the enterprise. NNSA oversight will be active and engaged, particularly in areas of high consequence. NA-00 will also develop a performance review capability that will leverage field office personnel from across the complex to drive performance standards. We have made clear that bad news must travel faster than good news, that skeptical thought is absolutely necessary and that we must delve into the details while communicating openly. We will work toward consistent implementation of requirements while allowing for purposeful differences when it makes sense.

Taken together, these management changes are designed to correct the deficiencies outlined in the Finan report and position NNSA for the future. There is no quick fix, and this is not a panacea. We must, and we will, continue to work daily to improve security in NNSA. This is a work in progress, we have not corrected all the management challenges, things are not perfect and we are not impregnable. You will never hear me say we are – thinking it could not happen here.

Chairman Frelinghuysen. How would you characterize the relative concern within the Department of Energy in making sure the necessary security reforms take place?

Administrator Miller. NNSA leadership has implemented several processes and procedures to improve security throughout the enterprise and ensure a consistent standard for security operations.

- The Defense Nuclear Security (DNS) mission was realigned to focus on policy development, strategic planning, and performance assessments of field-led activities.
- We realigned security resource execution to the Office of Infrastructure and Operations (NA-00) in alignment with its operational authority across all NNSA sites.
 - NA-00 is assuming operational control over security implementation across the Nuclear Security Enterprise.
 - Specifically, NA-00 will ensure clear lines of authority and accountability.
- For example: The NNSA Administrator recently dispatched the new Acting Chief of DNS, travelling with a team of security professionals, to visit every NNSA site during his first 100 days in office, executing limited and no-notice assessments of their security readiness, operations, and program implementation.
- NNSA is committed to change our culture of how we assess security so that we are less reliant on reports written by others and more focused on our own real time assessments with a “boots-on-the-ground” approach.

FAILURE TO ACHIEVE IGNITION

Chairman Frelinghuysen. Dr. Cook, as of this year, the American taxpayer has invested more than \$5 billion in constructing and operating the National Ignition Facility at Lawrence Livermore National Laboratory. While some have attempted to shift the justification for this facility away from its original purpose, it was justified to Congress as necessary for our stockpile stewardship program. Only this is certain – the facility's attempts to achieve nuclear fusion ignition have so far failed.

Why did the scientific effort to achieve ignition failed?

Dr. Cook. Demonstrating fusion ignition has always been recognized to be a grand scientific challenge. The National Ignition Campaign (NIC), a multi-laboratory, multi-year effort devoted to this pursuit, produced many significant advances on the pathway to ignition. Although the laser performed exceptionally well and exceeded the requirements specified in the original point design for NIC, the target response to the incident laser energy did not match model predictions. The understanding of the cause of the differences between simulations and experiments is being made more quantitative through the evolving set of precision diagnostics on the NIF. The best understanding of the community at present is that mix, implosion velocity, and low-mode asymmetries have limited the fusion fuel compression and pressure. It is imperative that the Stockpile Stewardship Program understands the physics underlying NNSA's inability to achieve indirect-drive ignition thus far, and in doing so, assess the important fundamental issues relevant to ignition. Ignition provides a critical capability needed to explore physical regimes of matter previously only achievable in a nuclear weapon. This capability will inform decisions that will be required for the future stockpile in the latter half of this decade.

Chairman Frelinghuysen. Is it still possible to achieve ignition in an experimental facility using the National Ignition Facility?

Dr. Cook. There is no data yet that would indicate that ignition cannot be achieved. The implosions are high quality and the fuel has been compressed to the high densities needed. At the same time, to date, there is no compelling scientific information suggesting that the indirect drive approach cannot achieve ignition. Because the indirect drive approach has the closest relevance to nuclear weapons physics, this will remain the

mainline approach for ignition either until it achieves ignition or until there is sufficient scientific understanding to support a conclusion that priorities should be reset to favor an alternative approach.

Chairman Frelinghuysen. If the NIF ultimately does not achieve ignition, have we just wasted over \$5 billion?

Dr. Cook. No. NIF is an important experimental capability, even in the absence of ignition, to certify nuclear weapons without resuming underground nuclear testing because it provides data directly related to the nuclear phase of the operation of U.S. nuclear weapons. We have gained great experience in laser operations and have built a large number of diagnostics since NIF was commissioned in 2009. The unprecedented power, precision, and reproducibility of the NIF laser enable NIF to explore a wide range of High Energy Density (HED) physics phenomena important for understanding the stockpile. NIF has already delivered important stockpile stewardship data in non-ignition experiments and in the pursuit of ignition. Specifically, important data have been obtained on the response of materials to extreme pressures and temperatures like those found during the nuclear phase of operation. NIF has also enabled comparisons of model predictions with data in these regimes. Both ignition and non-ignition experiments as planned will provide important data to inform long-standing unanswered stockpile performance issues, specific life extension options, and other stockpile surveillance issues. With or without ignition, NNSA will also retain the advantage that NIF has provided in attracting a new generation of nuclear weapons scientists and technicians interested in research opportunities at a leading, one-of-a-kind facility.

TUESDAY, FEBRUARY 26, 2013.

DEPARTMENT OF ENERGY—NUCLEAR NONPROLIFERATION AND NAVAL REACTORS FY 2014 BUDGET

WITNESSES

NEILE MILLER, ACTING ADMINISTRATOR, NATIONAL NUCLEAR SECURITY ADMINISTRATION

ANNE HARRINGTON, DEPUTY ADMINISTRATOR FOR DEFENSE NON-PROLIFERATION, NATIONAL NUCLEAR SECURITY ADMINISTRATION

ADMIRAL JOHN M. RICHARDSON, DIRECTOR OF NAVAL REACTORS, NATIONAL NUCLEAR SECURITY ADMINISTRATION

Mr. FRELINGHUYSEN. Good afternoon. The hearing will come to order.

We opened our hearing season a few weeks ago by examining what I consider to be the most critical responsibility of the Department of Energy, the programs to sustain our nuclear weapons stockpile. This afternoon we will explore the Department's two other major national defense programs, Nuclear Nonproliferation and Naval Reactors.

I would like to welcome back the Honorable Neile Miller, Acting Administrator of NNSA, and Ms. Anne Harrington, Deputy Administrator. Thank you for being back with us again this year. Admiral John Richardson, I would like to welcome you to your first appearance before our Subcommittee and express our support for you in your new position. The director of Naval Reactors is an eight-year tour reflective of the time it takes to develop the expertise and leadership to be selected for the post. I think I speak for all of my colleagues up here when I say you have this Committee's full support for your critical work.

Before we begin again I would like to note that the Administration is now nearly a month late in submitting its budget requests for the fiscal year 2014. While we would all appreciate the input of the Administration on the bills we are charged to write, we will move forward if necessary without it. This lack of information becomes even more problematic when seen through the eyes of the continuing resolution and sequestration which is projected to take effect this Friday. With no budget request we are robbed of the input of thousands of professionals who have dedicated their lives to keeping our nation safe.

Recent events have reminded us how challenging this work is. North Korea has triggered a third nuclear device. Iran, a close ally of the Syrian regime and international terrorist groups continues to push forward on its enrichment activities unabated, and we must always be on our guard for criminal and terrorist groups searching for the material to build the ultimate weapon, a nuclear weapon.

The nuclear nonproliferation programs of the Department have been developed to track and respond to these challenges, and this afternoon we will discuss their effectiveness. Last year, the Department proposed a dramatic cut to the core nonproliferation program budget which you have avoided thanks to the continuing resolution. Yet, as budgets get tighter, the costs of your major construction project, the MOX Project, are getting higher and higher. I suspect we will hear today what the department is doing to constrain the cost of this project so our nonproliferation programs do not suffer.

Our nonproliferation programs are able to operate thanks to the strategic stability that our nuclear triad has provided for our country and our allies for over 60 years now. The programs of Naval Reactors support the most stealthy, enduring leg of the triad, our submarines. They also ensure that our aircraft carriers have the power to provide American air superiority where needed to keep the peace and to respond to trouble when it arises.

Admiral, last year the Ohio Class Replacement Program was delayed by two years due to budget pressures, and this was before the threat of sequestration. Many of us made it our priority to ensure that American security is not weakened as a result of further budget cuts, but I am concerned that our operational readiness may be affected. I hope we can get your sense of how we will continue to meet such challenges.

Once again, welcome to our witnesses, and I will turn to my ranking member, Ms. Kaptur, for any comments that she may have.

[The information follows:]

**Opening Statement
Chairman Frelinghuysen
Budget Hearing on Nuclear Nonproliferation and
Naval Reactors Programs
February 26, 2013, 1:00**

The hearing will come to order.

We opened our hearing season a few weeks ago by examining what I consider to be the most critical responsibility of the Department of Energy: your programs to sustain our nuclear weapons stockpile. Today, we will explore the Department's two other major national defense programs: nuclear nonproliferation, and naval reactors.

I'd like to welcome back the Honorable Neile Miller, Acting Administrator for NNSA, welcome back. Ms. Anne Harrington, it's good to see you again, as well.

Admiral Richardson, I'd like to both welcome you to your first appearance before the subcommittee, and express our support for you in your new position. The Director of Naval Reactors is an eight-year tour, reflective of the time it takes to develop the expertise and leadership to be selected for this post. I think I can speak for my colleagues when I say that you have this subcommittee's full support for your critical work.

Before we begin, again, I would note that the Administration is nearly a month late in submitting its budget request for fiscal year 2014. While we would all appreciate the input of the Administration in the bills that we are charged to write, we will move forward, if necessary, without it. This lack of information becomes even more problematic when seen through the lens of the CR and sequestration, which is projected to take effect in a matter of days.

With no budget request, we are robbed of the input of the thousands of professionals who have dedicated their lives to keeping this country safe.

Recent events have reminded us how challenging this work is. North Korea has detonated a third nuclear device. Iran, a close ally of the Syrian regime and

international terrorist groups, continues to push forward on its enrichment activities, unabated. And we must always be on guard for criminal and terrorist groups searching for the material to build the ultimate weapon – a nuclear weapon.

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Admiral, last year the Ohio-class replacement program was delayed by two years due to budget pressures – and this was before the threat of sequestration. Many of us have made it our priority to ensure that American security is not weakened as a result of further budget cuts, but I'm concerned that our operational readiness may be affected. I hope we get your sense of how we will continue to meet such challenges.

Once again, welcome to our witnesses, and I'll turn to the Ranking Member for any comments she may have.

Ms. KAPTUR. Thank you, Mr. Chairman. They will be brief with courtesy to our guests today.

Administrator Miller, thank you so very much. It is great to see you again. Ms. Harrington and Admiral Richardson, welcome. We are all looking forward to your testimony today on the important matters that deal with national security issues under your jurisdiction. And particularly, I am very interested to learn more about the impact of budget cuts on the programs under your purview.

The threat of nuclear terrorism is one of the gravest national security threats that we face, and our nation must make real progress towards security fissile material. Obtaining this material is the most difficult step in any plan, and there is reason to believe that known terrorist groups are interested in acquiring material that can be used in nuclear weapons. In April of 2009, President Obama committed to an aggressive, nonproliferation agenda to secure all vulnerable nuclear materials worldwide in four years, an objective I wholeheartedly support. We all look forward to hearing about your progress toward that goal. Specifically, I would like to delve a bit during the questioning to the review of the Second Line of Defense Program and our relationship with Russia.

Admiral, the Naval Reactors Program is critical to the performance and the continuation of what is the safest and most secure leg of our nation's nuclear triad. Naval Reactors has often been looked to for expert opinion and for management support to other government programs, and we are confident that you will continue this great service to our country. We look forward to your insights regarding recent changes in program schedules and costs, as well as more details in how this program has changed since last year.

Thank you, Mr. Chairman, for the time.

Mr. FRELINGHUYSEN. Thank you, Marcy.

Ms. Miller, welcome. Thanks.

Ms. MILLER. Thank you. Thank you, Mr. Chairman, Ranking Member Kaptur, and Distinguished Members of the Subcommittee. It is good to see you again this afternoon.

I appreciated our time discussing the ways that NNSA has and is continuing to improve the way we are operating, our vision for the future, and the ongoing changes we have made to put us in a place to succeed, as well as to discuss our priorities moving forward. I would also like to note, as you did, that today I am testifying for the first time with Admiral John Richardson, who begins his first year of his eight-year term as deputy administrator for the Office of Naval Reactors. I was also honored to serve with his predecessor, Admiral Donald.

Thank you all, and I look forward to answering your questions today about NNSA's Nonproliferation and Naval Reactors Programs. As you know, almost four years ago in Prague, President Obama shared his vision for a world without nuclear weapons, free from the threat of nuclear terrorism, and united in our approach toward shared nuclear security goals. And we have made great strides in security vulnerable nuclear material across the globe, preventing the proliferation of dangerous nuclear material and building a sustainable approach to nuclear security with our global partners. NNSA has removed all highly-enriched uranium from nine countries since the president gave his speech, and we will

complete prioritized removal of vulnerable nuclear material from four more countries this year. I can confidently and proudly say that because of our work, it is much harder for a terrorist or smuggler to acquire nuclear material today than it was when the president came into office.

However, we talked a couple of weeks ago about the severe impacts sequestration would have on our weapons activities at the NNSA. The implications of sequestration on our Nonproliferation and Naval Reactors programs are just as serious and would do permanent damage, we believe, to our national security. Even with reprogramming authority, which again we must have if sequestration were to become a reality, hundreds of nonproliferation jobs would be impacted. Impacts would be felt across NNSA's sites in places like Tennessee, South Carolina, Texas, Missouri, California, and New Mexico, but also at places like Pacific Northwest National Laboratory in Washington, Argonne National Laboratory in Illinois, and Brookhaven National Laboratory in New York. Dozens of our private sector partners at small businesses and academic partners at universities across the country would also see a significant negative impact because of reductions to our nonproliferation efforts.

I want to be very direct here. Sequestration will cause severe damage to our programs and our capabilities; in some cases, permanent damage. For example, at a time when North Korea and Iran are both working to advance their nuclear programs and near weeks as you pointed out, Mr. Chairman, after North Korea conducted yet another nuclear test, sequestration will severely lessen our ability to detect nuclear detonations across the globe. A forced cut to our R&D nuclear detonation detection budget will cause NNSA to miss the delivery milestone of a crucial U.S. nuclear detonation detection satellite payload and the satellite will be completed and launched without its intended nuclear detonation detection sensors. This will decrease the U.S. ability to monitor surface and above-ground nuclear detonations as required by law, but also as required by common sense. Once we launch that satellite there is obviously no way to bring it down to attach a detection system and then relaunch it. The United States with that satellite, only because of sequestration, will have lost some of its crucial nuclear detonation detection capabilities.

Our Naval Reactors operation, which provides the power that ensures American sailors can reach ports across the globe, would also see serious impacts. Under sequestration there will be approximately 400 contractor layoffs spread throughout facilities in New York, Pennsylvania, Idaho, Connecticut, and Virginia. In addition, the refueling overhaul of the nuclear navy's land-based training prototype in New York will be delayed, degrading the nuclear navy's ability to ensure adequate qualified sailors exist to operate both aircraft carrier and submarine fleets. Further, the construction of the new naval spent fuel handling facility in Idaho will be delayed.

I know many of you here today agree that sequestration is a dangerous proposition. As you heard from me recently, sequestration will impact both the economic and national security of this country, and I urge you and your colleagues to take prompt action to avoid

the budget uncertainty of sequestration. It is in everyone's interest to do so.

As we look to the future and see opportunity across the globe, over the past four years we have seen our international partners show focus, determination, and growth on our shared nuclear facility goals. Russia, for example, has emerged with a new determination and an eye on full partnership with us, committed to keeping dangerous material out of the hands of proliferators and terrorists. After 20 years of work, we are moving towards the next phase in our relationship where we work together as equals for the security of our people. The Russians are not alone, and dozens of countries have stood alongside President Obama and the United States at two nuclear security summits to show their commitment to our shared cause.

I have recently had the honor of testifying before you so I will be brief this afternoon. But as I have said, we must continue to chart the path of nuclear security together, and avoiding sequestration would be one of the most important ways we could do that. Not doing so will do lasting harm to the cause of nuclear security in the United States and across the globe.

I again thank you for having me here today, and I look forward to answering your questions.

[The information follows:]

Statement of Neile Miller
Acting Undersecretary for Nuclear Security/Acting Administrator
National Nuclear Security Administration
U.S. Department of Energy
on
NNSA Defense Nuclear Nonproliferation and Naval Reactors Activities
before the
Subcommittee on Energy & Water Development
House Committee on Appropriations
February 26, 2013

INTRODUCTION

Chairman Frelinghuysen, Ranking Member Kaptur, and distinguished members of the Subcommittee, thank you for having me here today to discuss the National Nuclear Security Administration's (NNSA) Defense Nuclear Nonproliferation (DNN) and Naval Reactors (NR) Programs. But more importantly, thank you for your continued support of the NNSA, and the 35,000 men and women working across the enterprise to keep our country safe, protect our allies, and enhance global security. We could not do this work without strong, bipartisan support and engaged leadership from the Congress.

Earlier this month I testified before this Subcommittee about the considerable budget uncertainty facing the NNSA and our critical national security missions under our Weapons Activities account. We are currently operating under a Continuing Resolution (CR) that expires March 27, 2013, and the current fiscal uncertainty, including the uncertainty resulting from a potential sequestration, also present great challenges to meeting our nuclear nonproliferation and naval propulsion missions.

I want to assure you that NNSA is being thoughtful, pragmatic, and efficient in how we achieve the Nation's nuclear security objectives and shape the future of nuclear security.

SEQUESTRATION AND CR IMPACTS

Should sequestration take effect on March 1, 2013, the DOE and NNSA could be severely impacted, along with other Federal agencies. The DOE/NNSA plays a critical national security role in the following areas: ensuring a safe, secure and effective nuclear weapons stockpile, leading critical nuclear nonproliferation and nuclear security programs around the globe, providing for the Navy's nuclear propulsion capabilities, and developing and deploying nuclear counterterrorism and emergency response capabilities. As Secretary Chu has previously stated, sequestration could affect thousands of jobs and reduce the Department's ability to serve the American people. These cuts could come five months into the current fiscal year, forcing the Department to absorb the spending reduction in a seven-month period rather than an entire year.

Under the current law, the NNSA FY 2013 budgetary resources would be cut by roughly 8 percent, which equates to an effective reduction of over 13% when implemented over the remaining seven months of the fiscal year.

Defense Nuclear Nonproliferation

Almost four years ago in Prague, President Obama shared his vision for a world without nuclear weapons, free from the threat of nuclear terrorism, and united in our approach toward shared nuclear security goals.

Under sequestration, the level for the DNN appropriation would be nearly \$250 M below the FY 2013 President's Budget, and more than \$84M below the FY 2012 enacted level.

Regarding the **NNSA workforce at our labs and plants**, more than 5,000 contractors could be impacted through either work hour reductions or other personnel actions. Specifically, this could result in layoffs of 216 DNN contractors, as well as more than 200 USEC-related FTEs, and 15 University and small business employees.

Some specific programmatic impacts of the sequestration on the Office of Defense Nuclear Nonproliferation are detailed below.

Office of Research and Development (R&D)

Reducing the R&D budget by a little more than \$130M below the President's FY 2013 budget request will have significant negative impacts on the Domestic Uranium Enrichment and Nuclear Detonation and Proliferation Detection projects.

Budget cuts of \$60M from the President's FY 2013 budget request to the Domestic Uranium Enrichment Research, Development and Demonstration (RD&D) project will result in the project not meeting the scope and timelines stipulated in DOE's Cooperative Agreement with the U.S. Enrichment Corporation, and will likely result in the U.S. not having an indigenous uranium enrichment capability for at least the next 20 years.

The R&D Nuclear Detonation Detection budget cut of \$36M will cause NNSA to miss the delivery milestone of a crucial US Nuclear Detonation Detection satellite payload, and this satellite will be completed and launched without its intended nuclear detonation detection sensors. This will degrade the U.S. ability to monitor surface and above-ground nuclear detonations as required by Public Law 110-181; Sec 1065 & Public Law 111-383; Sec 913. The R&D Proliferation Detection budget cuts of roughly \$33M will cause NNSA to miss all six R&D initiatives planned for meeting the Administration's goals for nuclear nonproliferation test monitoring and arms control as required in Section 8115(b) of Public Law 111-118. This reduction may degrade the success of international treaties and agreements, which depend, in part, upon developing the capabilities to support negotiations and detect non-compliance of the treaty. In addition to the loss of laboratory FTEs described above, these cuts will also reduce future nuclear science and security research efforts at approximately 50 universities across the country over the next three years and at over 30 small businesses over the next two years.

Office of Nonproliferation and International Security (NIS)

Reducing the NIS budget by \$10M, will have significant negative impact on missions that support compliance with the Nuclear Non-Proliferation Treaty (NPT), export controls for nuclear technologies, and efforts to stem the flow of nuclear expertise, all of which are Presidential priorities and commitments to foreign partners.

NIS support to the International Atomic Energy Agency's (IAEA) international safeguards regime, the main mechanism for ensuring compliance with the Nuclear Non-Proliferation Treaty and the cornerstone of the nonproliferation regime, will be cut. NIS will be forced to reduce safeguards and security capacity-building training for foreign partners and training to develop the next generation of safeguards experts.

Funding to develop sustainable national export control systems in other countries to enable them to track and prevent illicit transfers will be reduced. This loss of project funding will increase the risk of illicit trafficking of WMD-related dual-use items. Program contraction will mean that NIS will not meet its FY 2013 Performance Measurement Metric in this area and export control and counter illicit trafficking cooperation activities with major supplier states will be either eliminated or delayed.

NIS funding to scientist engagement activities through the transformed Global Security through Science Partnerships (GSSP) program will be reduced, eliminating GSSP plans for bilateral engagement with new priority countries, and terminating multilateral commitments including the large Fukushima Support Program through the International Science and Technology Center (ISTC) and the Science and Technology Center in the Ukraine (STCU). This loss of project funding will increase the risk of transmission of sensitive WMD-related information to both state and non-state actors of national security concern to the United States.

Legacy Contractor Pensions

This reduction will leave a shortfall of \$11M in Legacy Pensions below the FY 2013 request.

Naval Reactors

Naval Reactors is responsible for the day-to-day work associated with supporting the safe and reliable operation of 96 naval nuclear reactor plants, plants which provide power to more than 40 percent of the U.S. Navy's major combatants -- 10 aircraft carriers and 72 nuclear-powered submarines, which includes 14 OHIO-class ballistic missile submarines.

Under sequestration, funding for Naval Reactors would be \$92M below the FY2013 President's Budget, and \$83M below the FY2012 enacted level.

Sequestration will result in approximately 400 contractor layoffs spread throughout facilities in New York, Pennsylvania, Idaho, Connecticut and Virginia. In addition, the refueling overhaul of the Nuclear Navy's land-based training prototype in New York will be delayed, degrading the

Nuclear Navy's ability to ensure adequate, qualified sailors exist to operate both CVN (aircraft carrier nuclear) and submarine fleets. Further, the construction of the new naval spent fuel handling facility in Idaho will be delayed. This delay will necessitate \$100M annually for additional shipping and storage containers.

As these examples demonstrate, sequestration will impact both the economic and national security of this country, and we urge Congress to take prompt action to avoid the budget uncertainty of sequestration.

ACHIEVING THE PRESIDENT'S NUCLEAR SECURITY OBJECTIVES

DEFENSE NUCLEAR NONPROLIFERATION FY 13 PROGRAM STATUS UPDATES

One of our most important missions has been to support the Administration's commitment to secure the most vulnerable nuclear material across the globe in four years. Our accomplishments in securing plutonium and highly enriched uranium around the world have made it significantly more difficult to acquire and traffic the materials required to make an improvised nuclear device, and I am proud to say that we are on track to meet our goals to remove or dispose of 4,353 kilograms of highly enriched uranium and plutonium in foreign countries, and equip approximately 229 buildings containing weapons-usable material with state-of-the-art security upgrades.

So far in FY2013, NNSA programs removed 57 kilograms of highly enriched uranium (HEU) and plutonium from countries such as Uzbekistan, Australia and Hungary, for a cumulative total of more than 3,520 kilograms of HEU and plutonium removed to date (enough for more than 135 nuclear weapons). This achievement includes the complete removal of all HEU from Austria—a total of 22 countries now have been completely cleaned out of all HEU. So far in FY2013 NNSA programs have converted or verified the shutdown of 2 HEU research reactors for a cumulative total of 84, and completed security upgrades at 27 civilian buildings containing high-priority radiological materials worldwide for a cumulative of 1,515 buildings completed to date. Our programs also completed nuclear security upgrades at a cumulative 218 buildings in Russia, Eastern Europe and Eurasia containing weapons-usable nuclear materials.

We continued construction of the U.S. Mixed Oxide (MOX) Fuel Fabrication Facility and have monitored the downblending of an additional 30 metric tons (MT) of Russian weapons-origin HEU to LEU (for a cumulative total of 463 MT from dismantled Russian nuclear weapons), and also have downblended a cumulative total of 141 MT of surplus U.S. HEU.

NNSA nonproliferation programs continue to advance the Administration's counter nuclear smuggling objectives, and to detect, deter, and prevent the spread of nuclear and radiological weapons and weapons-relevant materials, technology, and expertise. So far in 2013, our programs installed radiation detection equipment at 5 priority international sites including border crossings, airports and seaports, reaching a cumulative total of 498 sites and deployed 3 Mobile Detection Systems (MDS) in the Czech Republic and Lithuania for a total of 41 MDS units in 14 countries. We have also transitioned a total of over 240 sites equipped with radiation detection

equipment to full partner country responsibility, as part of a comprehensive sustainability approach. We work with roughly 30 partner countries annually to develop sustainable national export control systems that meet critical requirements, and played a leading role in the 2012 Nuclear Supplies Group (NSG) Plenary in Seattle, Washington, which resulted in significant changes to the NSG's control lists for reactor and enrichment technologies.

Long-term sustainment of nuclear security capacities around the world is a key element of the NNSA nonproliferation effort. Our technical experts continued to collaborate with Nuclear Security Centers of Excellence (COEs) in South Korea and Japan, and continued cooperative work with China and India to establish their COEs. Our programs have worked with partners in Kazakhstan and other Eurasian countries to establish indigenous nuclear security training centers for those who operate, maintain, and protect nuclear facilities. We promoted the importance of a strong Nuclear Security Culture via workshops in Ukraine, Belarus, and China as well as supported the further development of IAEA's Nuclear Security Culture Enhancement Program.

NNSA's nuclear safeguards efforts work in concert with its nuclear security efforts, preventing the diversion and theft of nuclear materials. NNSA is supporting the development of safeguards technologies, expertise and international safeguards infrastructure necessary to strengthen the international nuclear safeguards system and to lock in the gains achieved through NNSA's security and threat reduction efforts.

Finally, NNSA programs continued development of new nonproliferation technologies to detect the proliferation of nuclear weapons and other WMD, and to increase the capacity of the United States and other countries to monitor and verify the security and accounting of nuclear and radiological material worldwide. We have continued to develop new capabilities to detect and identify extremely low nuclear detonations around the world and at increasing levels of confidence, and we continue to evaluate technologies, such as nuclear warhead chain-of-custody methods, for their applicability for use in future nonproliferation and arms control inspection regimes as well as to identify gaps for additional work.

For 2013, the Defense Nuclear Nonproliferation FY13 budget requested \$2.46 billion to continue these and other critical nonproliferation and nuclear security efforts. Our continued focus on innovative and ambitious nonproliferation and nuclear security efforts is vital. The threat is not gone, and the consequences of nuclear terrorism and state proliferation would be devastating. We remain committed to reducing the risk of nuclear terrorism and state-based proliferation through a multi-layered strategy that strengthens the global nuclear security environment and prevents nuclear weapon proliferation.

NAVAL REACTORS FY 13 PROGRAM STATUS UPDATES

The Naval Reactors program ensures the safe and reliable operation of reactor plants in nuclear-powered submarines and aircraft carriers, which constitute more than 40 percent of the U.S. Navy's major combatants. The FY 2013 request for Naval Reactors is \$1.09 billion. Funding for this program includes the day-to-day challenges associated with maintaining a nuclear-powered fleet; the design and development efforts for the Ohio-class Replacement; the refueling of the

Land-Based Prototype reactor; and recapitalization of the naval spent nuclear fuel infrastructure at the Naval Reactors Facility located at the Idaho National Laboratory.

The OHIO-class is the most survivable leg of the Nation's strategic arsenal and the only day-to-day assured nuclear response capability. However, that capability is moving toward the end of its service-life with the first of the current OHIO-class submarines scheduled to be taken out of service in 2027. Work to ensure the continuity of the sea-based deterrent is moving forward with the continued development of the OHIO-class Replacement submarine, the centerpiece of which is a life-of-ship reactor core. A life-of-ship core, coupled with emerging maintenance innovations will result in greater operational availability of these submarines and will ultimately enable the need for fewer submarines, 12 vice today's 14 OHIO-class submarines.

Critical to the development of the life-of-ship core, the planned refueling of the Land-based Prototype reactor provides a manufacturing development platform and opportunity for use of new technologies, materials, and components. As part of this project, reactor core manufacturing development and demonstration for the life-of-ship core will be performed. By constructing the replacement core for the prototype with technologies planned for the OHIO-class Replacement, Naval Reactors will mitigate technical, cost, and schedule risks to the ship construction program. Moreover, the Land-based Prototype provides a critical training asset to ensure the sailors of the Nuclear Navy continued to be the best trained in the world.

Naval Reactors responsibilities extend to the ultimate disposal of naval spent nuclear fuel. Major portions of the current spent fuel handling infrastructure in Idaho are more than 50 years old and were not designed for the efficient processing and packaging of spent fuel. Naval Reactors is continuing with the conceptual design phase for the new Spent Fuel Handling Recapitalization Project (SFHP) which will ultimately replace the aging Expended Core Facility (ECF). The ECF does not have the capability to unload full-length aircraft carrier fuel, a capability needed to ensure the Navy's tight defueling and refueling schedule for the NIMITZ-class aircraft carriers. Finally, the SFHP will enable us to meet our commitments under the 1995 Idaho Settlement Agreement which requires that our spent nuclear fuel be moved from wet to dry storage and ultimately to permanent disposal.

IMPROVING NNSA MANAGEMENT

We are continuously improving so we are able to do the work the American people need us to do, in a time when everyone is looking to do more with less. We are positioning ourselves for the next decade by making big decisions focused on the future.

Most significantly, on January 8, 2013, the NNSA awarded a contract worth \$23 billion over 10 years to Combined Nuclear Security (CNS) for the combined management of the Y-12 National Security Complex in Tennessee and the Pantex Plant in Texas, with an option for phase-in of Tritium Operations performed at the Savannah River Site in South Carolina. Although the award is currently under an automatic stay while being protested at the GAO, the new business model will shape the future of the United States' Nuclear Security Enterprise and will save significant taxpayer dollars over the next decade. Furthermore, combining contracts and site offices will

allow us to improve performance, reduce the cost of work, and operate as an integrated enterprise.

We will continue to seek strategies to engender meaningful improvement in performance and reduction of costs for taxpayers at every nuclear security enterprise site in future competitions as well as existing contracts.

In addition, the recently established Office of Acquisition and Project Management (NA-APM) continues to integrate our acquisition and project management staffs resulting in \$20 Million in reimbursements from contractors last year as we utilize our contracts to hold them accountable for unsatisfactory performance. We issued an unambiguous design policy for our complex nuclear projects ensuring that sufficient design work is completed prior to approving project baselines at Critical Decision 2. We have completed 12 projects that were baselined in 2006 or later, eleven of the twelve were completed on or under their approved baselines, and the entire portfolio was completed 10 %, or \$32 million, under budget. We are confident that the lessons learned in delivering this work are applicable and scalable to the major systems projects we have had problems with in the past.

Finally, one of the major actions NNSA took last year was standing up a consolidated office to oversee and direct the operations and infrastructure. The new office will facilitate NNSA's management of the Nuclear Security Enterprise across all eight sides, and will make management more efficient and effective.

CONCLUSION

Our mission is vital, and your past support has been key in helping us accomplish it. The NNSA budget reflects our commitment to keeping the American people safe while continuously improving and doing our part in a time of fiscal austerity. We are looking toward the future and building an organization that is aligned to succeed. I look forward to working with each of you to help us do that. Thank you.

Mr. FRELINGHUYSEN. Thank you for your testimony.
Admiral Richardson.

Admiral RICHARDSON. Mr. Chairman, Ranking Member Kaptur, Distinguished Members of the Subcommittee, thank you for the opportunity to testify before you today. Thank you, Administer Miller, for your kind words.

It is a privilege to be here today to represent the men and women of the Naval Nuclear Propulsion Program. And as has been pointed out, this is my first of hopefully many times testifying as the director, and I am eager to share our progress, opportunities and challenges.

I would like to begin by thanking the Subcommittee for recognizing the people of Naval Reactors in your Fiscal Year 13 bill. Your words are an eloquent recognition that it is our people who have chosen to join the program and often spend their entire career at Naval Reactors in service to our nation that make all we do possible. This Subcommittee has shown consistent strong support for them and I am grateful.

Today's Naval Nuclear Propulsion Program provides for research, development, design, procurement, certification, operation, and eventual disposal of the 96 naval nuclear reactors that power more than 40 percent of the U.S. Navy's major combatants—10 aircraft carriers, 14 *Ohio*-class Ballistic Missile Submarines, 4 Guided Missile Submarines, and 54 Attack Submarines. These ships are available whenever called to go anywhere in the world and remain continuously on station in defense of our nation's interests. Today, the program is active across the entire cradle-to-grave lifecycle.

At the beginning of that cycle, we are designing the reactor plan for the submarine that will replace the *Ohio*-class sea-based strategic deterrent. Our SSBNs are the most survivable leg of the nation's strategic arsenal. Nuclear propulsion made this possible. Every minute for the last 53 years, our SSBN fleet has been on continuous patrol. For the last 31 years, that responsibility has been borne by those sailors operating the *Ohio*-class submarines. The first of these submarines is quickly approaching the end of its life and must be replaced. The procurement of the first *Ohio* replacement submarine is scheduled for 2021 with nuclear component procurement beginning in 2019.

We are working to design the replacement for the *Ohio*-class with a ship that meets requirements at the best possible cost. A centerpiece of our contribution to that effort is to provide a new reactor core that lasts for the entire life of the ship—running for over 40 years with twice as many operating hours than any core we have produced to date. This new "life-of-ship" core, together with other maintenance innovations enables the new SSBN force to eliminate the midlife refueling and turn shipyard time into at-sea time. As well, by virtue of the increased operational time made available by this core, the new class of SSBN is able to meet its strategic requirements with two fewer ships. This translates to over \$10 billion in acquisition savings and \$30 billion in maintenance and personnel savings.

Essential to delivering the life-of-ship core is refueling the land-based prototype reactor beginning in 2018. The core we use for this prototype will include special features that allow us to validate so-

p sophisticated manufacturing techniques and better understand the behavior of the core for the *Ohio* replacement. This will mitigate technical costs and schedule risks to the ship's construction program and allow us to continue to train fleet operators.

Our 58 years of experience in designing and building submarines tells us that the progress for these two related efforts—prototype refueling and *Ohio* replacement reactor plant design—must proceed briskly to achieve the goal of having the lead ship on its first strategic deterrent patrol on schedule in 2031.

At the other end of the cradle-to-grave cycle, I am also responsible for managing our spent cores. My spent fuel handling infrastructure in Idaho is more than 50 years old and was not designed for processing and packaging of spent fuel. To ensure we can execute the Navy's refueling schedule for the *Nimitz*-class carriers, we are continuing with conceptual design of a new Spent Fuel Handling Project (SFHP). This will come online in 2022 and replace the current Expended Core Facility (ECP) which is becoming obsolete. The new facility will also enable me to meet my commitments to the State of Idaho under the 1995 Settlement Agreement, which requires that spent naval nuclear fuel will be moved to dry storage and ultimately to permanent disposal.

Having described the critical projects we have underway, I would like to end where I began by describing the efforts of our people in our two labs, working on five sites, that form the base of our program. Were it not for these scientists and engineers, supported by funds provided through this Subcommittee, I cannot meet my responsibilities for safe and reliable operation of the nuclear-powered fleet. To keep ships at sea, it is common for our laboratory experts to be working with my headquarters team through weekends, overnight, and during holidays. They provide the technical foundation that is essential to execute both my regulatory and fleet support responsibilities.

Mr. Chairman, I am grateful for the support this Subcommittee has given the Naval Nuclear Propulsion Program. I look forward to working together with the Subcommittee to advance the three critical projects discussed today and to support the safe operation of the nuclear-powered fleet. Administrator Miller has discussed the impacts of sequestration on my program. I will not belabor those difficulties now. Suffice it to say, Naval Reactors will fuel the significant and disruptive effects of sequestration throughout the program—from cradle to grave. I respectfully ask for your continued support.

Thank you again, and I am ready to answer any questions.

Mr. FRELINGHUYSEN. Thank you very much. Ms. Kaptur and I served on the Defense Appropriations, and if we look like we are under siege it is because we spent two and a half hours across the way from all of you here and we are acutely aware, and I think members of both parties are concerned about the consequences of sequestration, not only on your important work which is really a major imperative, but across the whole spectrum, certainly in terms of national defense. And you are a key component of that and we recognize that. I think we are acutely aware. We are not quite sure what is going to happen after Friday but we are going to do our level best to make sure that your tasks and your special

responsibility is held as harmless as possible throughout the entire process.

Admiral RICHARDSON. Thank you, sir.

Mr. FRELINGHUYSEN. I would like to ask, and Ms. Harrington, you do not have any comments but I know you are extremely knowledgeable and ready to put your oar in the water here, but thank you for being here.

I want to talk a little bit about the Nunn-Lugar Cooperative Threat Reduction Agreement. That has been in force for 20 years and I think most people in the room are familiar with the good work that that agreement has been committed to. That umbrella agreement with Russia is set to expire in June. Is that correct?

Ms. HARRINGTON. That is correct.

Mr. FRELINGHUYSEN. Tell us why Russia is unwilling to sign that agreement, or maybe they would be willing to sign it. Who is prepared to address the types of issues that they are concerned about?

Ms. MILLER. Well, first of all, I think that—and Anne Harrington is going to speak a little bit more in-depth about this—we actually are very encouraged at this point by the recent discussions that the State Department had with its counterparts in Russia on this subject. I think what we are seeing is that—and this is actually probably not a bad development—the Russians are insisting that at this point, 20 years after the end of the Cold War and many years into our cooperative work together, that they are ready to be full partners with us. Now, full partnership for us is going to mean a full partnership, but I think from their perspective it is important that they no longer be seen just as a recipient of U.S. aid when it comes to this area and that this is something that they themselves at this point have taken into their own culture, whether it is protection of material or training of people or accountability systems. This is now something that after many years of working with us and having learned from us, they are prepared to carry out on their own or with us as a partner.

Do you want to add to that?

Ms. HARRINGTON. Just very briefly because I think Neile has touched the main parts—

Mr. FRELINGHUYSEN. So it did not come as a surprise?

Ms. HARRINGTON. Not at all. Not at all. This was evolving, and as Neile said, we take this as actually a very positive and encouraging sign. Russia needs to step up and be a partner with us. We have started to talk about where the two countries, with our 20 years of experience under Cooperative Threat Reduction, could in fact work together in third countries, perhaps even in countries that are going to be coming for the first time into the nuclear technology age, building nuclear power plants, who do not have an idea of what security is, who do not know how to build a security culture, who do not know how to do the things we have developed together as partners. So we take this as a very encouraging step.

On the agreement itself, we actually began under State Department leadership, because this is a diplomatic initiative, to engage with Russia in June of 2012. There was just a very successful discussion in Moscow the week of February 13th to open a dialogue on where to go. We play an active role, along with the Department

of Defense and the Department of State in these negotiations, and as they proceed we will be happy to keep the Committee informed.

Mr. FRELINGHUYSEN. So did it come to you as a surprise?

Ms. HARRINGTON. No.

Mr. FRELINGHUYSEN. It did not come to you as a surprise?

Ms. HARRINGTON. No.

Mr. FRELINGHUYSEN. We have made a substantial financial commitment over the last 20 years. How much money have we been putting forward and how much money have they put forward? And is not one of the issues here that some of the money that they have agreed—they have made some pretty substantial commitments themselves; is that right?

Ms. HARRINGTON. They have indeed. And as we interpret the discussions with the Russians, they intend to make more substantial contributions in the future. As Neile said, full partnership. Our concern here, and to be frank, is we have made considerable investments in Russia over the years—in equipment, in training, and in sustainability. We feel that it is necessary to continue to be engaged in these programs, to ensure that the investments that we have made on behalf of our security and global security continue to function the way they were intended. So we do see a future role as we go through this transitional stage with Russia.

Mr. FRELINGHUYSEN. But a different sort of relationship?

Ms. HARRINGTON. Absolutely.

Mr. FRELINGHUYSEN. They still have to fulfill some of the financial—they have set aside money—correct me if I am wrong—but now they need to continue to work with us in terms of putting those rubles towards—

Ms. HARRINGTON. Correct. We want to make sure that the systems that we have helped provide are, in fact, sustained and operational into the future.

Ms. MILLER. So we believe that within their government—not surprisingly they have something similar to ours, they have to get their budget through—and we are looking strongly now to make sure that the commitments that have been made and discussions with the United States Government are carried all the way through and the funding is put in place.

Mr. FRELINGHUYSEN. Well, they have the financial wherewithal.

Ms. HARRINGTON. It depends on the price of oil.

Mr. FRELINGHUYSEN. Yeah. They certainly have quite a lot of the world's—

Ms. HARRINGTON. They have a lot of financial wherewithal.

Mr. FRELINGHUYSEN. They have a lot of the world's oil supply.

Ms. HARRINGTON. That is right. Yes. And their budget would be, in fact, affected by the price of oil.

Mr. FRELINGHUYSEN. Do you anticipate that we will reach some sort of agreement before the current framework expires?

Ms. HARRINGTON. That is the goal.

Mr. FRELINGHUYSEN. So you have a high degree of confidence?

Ms. HARRINGTON. We are encouraged. Very much encouraged by the most recent negotiations. Yes.

Mr. FRELINGHUYSEN. All right. Ms. Kaptur.

Ms. KAPTUR. Thank you, Mr. Chairman, very much.

Ms. Harrington, could you give us—from what I am hearing in your response in terms of Russia is that it is largely a budget issue in terms of reaching an agreement. Am I hearing you correctly? Their budget.

Ms. HARRINGTON. It is not so much a budget issue as—and this has been fairly widely reported in the Russian press that Russia is trying to reposition itself in the context of a number of agreements. So it is no longer seen as an assistance recipient; that it is now able to fully support its participation, whether it is in counter-narcotics or nonproliferation or whatever the topic. So this is happening not just in our context but in many other places as well where Russia has, since the collapse of the Soviet Union, been in this recipient relationship with other countries. But the fact that they are stepping up actively is indeed very encouraging.

Ms. MILLER. And I think, you know, from our perspective, to be a full partner with us in Russia and in other countries as we agree when we agree to decide to go together in places, we would expect that they will have financial requirements as well.

Ms. KAPTUR. Thank you. What does your expertise tell you about Iran and its nuclear capabilities?

Ms. HARRINGTON. We could certainly discuss any of the IAEA reports on Iran's capabilities. We know that they are capable of producing at least 20 percent enrichment uranium or up to 20. I should not say 20—up to 20 percent. We could go into much more detail with you in a classified setting.

Ms. KAPTUR. All right. Let me ask you about detection of nuclear explosions. Do we have the capabilities to determine what type of device was detonated in North Korea, its explosive yield, and especially, what fissile material fueled the explosion? These seem to be the questions that many people have. And then this Committee appropriated \$132 million last year to the NNSA for nuclear detonation detection. How do the technologies developed and produced by the NNSA's nonproliferation program assist us in answering these types of questions?

Ms. HARRINGTON. So thank you for that question.

The detection capabilities for a test like the North Korean one are both national technical means as well as data that we receive from the Comprehensive Test Ban Treaty International Monitoring System. So we, in fact, get independent streams of data. We also get data from, in fact, the research community which has a very active seismic network and has sensors of different kinds distributed around the world. We fund the development of technical approaches that are utilized by other parts of the U.S. Government to collect and analyze information. So we are a test bed. We are the development, the R&D arm for other agencies. Again, if we want to go into specific details about which agencies use our capabilities, we would have to be in a classified setting.

In particular, we have developed improvements in yield estimation, location, and speed of radionuclide analysis, and these are all deployed by the Department of Defense. Information about the nature of the fissile material in the North Korean device would probably only be possible if certain radionuclide byproducts of the test were collected. They would have to escape to the environment. We know from the 2009 test, for example, we were not able to de-

tect those radionuclides. We did in 2006. There is still analysis ongoing to see if any of those signals can be detected, but it is very dependent on how the North Koreans design their test and we know from 2009 they were able to design a test that escaped some of our detection capabilities.

Ms. MILLER. Just to amplify what Anne was saying about what our role is with this, the agencies Anne referred to obliquely tell us the kind of capability they believe they need. We fund the work. We do the work that provides that capability to the best of the ability of people who are developing things right now.

Ms. KAPTUR. That was one of the add-on questions. Do we need to make more investments in alternate types of detection technologies? And if so, where should we concentrate for the next phase of research and development?

Ms. HARRINGTON. Well, we are always trying to stay ahead of those who are trying to evade the detection capabilities that we have. We have always looked at trying to keep a balanced portfolio of space-based seismic radionuclide infrasound hydroacoustic and other means of detection; to explore technologies to see if they can add to our understanding of these events. So that is part of an ongoing process. And as well, to work not only with our domestic partners but also to work with the international community to see not only what we can develop but where we can place technologies in order to get better fidelity.

Ms. KAPTUR. Thank you very much. And could I finally just ask very briefly, in terms of working relationships with Pakistan, Administrator Miller, you went through a lot of countries—some were mentioned, some were not. Is that relationship transparent?

Ms. MILLER. If it is a transparent relationship, the United States Government has open relations with the government of Pakistan. We engage in a variety of programs with Pakistan. We have a mega ports project there as part of the second line of defense. We do export control training. We support International Atomic Energy Agency activities to secure radioactive sources there. We are optimistic that the IAEA will also be able to expand that program to physical security of their nuclear power reactors sometime in the not too distant future. So we do have as active a program as we can with Pakistan.

Ms. KAPTUR. Thank you. Thank you, Mr. Chairman.

Mr. FRELINGHUYSEN. Thank you, Ms. Kaptur.

Mr. Alexander.

Mr. ALEXANDER. Thank you, sir.

Ms. Miller, you touched slightly on some of the President's remarks as they dealt with Russia at the press conference they had over there with the Russian President. Our President said to prevent terrorists from acquiring nuclear weapons we came together at our National Security Summit where our two nations made numerous commitments, including agreeing to eliminate enough plutonium for about 17,000 nuclear weapons. Central to this commitment is the completion of the MOX facility in South Carolina. What happens if it falls through? What do we do with the waste? How do we convert it?

Ms. MILLER. So the United States Government remains completely committed to the agreement that we signed with Russia for

the disposition of that excess weapons plutonium. As far as the project itself is concerned, we continue to manage that. The President's budget fully funded the requirements for that construction project, and the NNSA continues to manage it as an ongoing project. That is the project of record right now.

Mr. ALEXANDER. Okay. So the President's commitment to that project in the new budget will not reflect a dilution of that commitment?

Ms. MILLER. Unfortunately, I am not able to talk in any way, shape, or form about a budget that is not up here. I apologize for that but that is the state of the budget situation right now.

Mr. ALEXANDER. Well, that is the bind that we find ourselves in, too, you know.

Ms. MILLER. I know.

Mr. ALEXANDER. Thank you, Mr. Chairman.

Mr. FRELINGHUYSEN. Mr. Calvert.

Mr. CALVERT. Thank you, Mr. Chairman.

China continues to modernize and expand its nuclear stockpile, and obviously it now is on the cusp of obtaining a triad land-based intercontinental ballistic system that can both launch missiles, submarine-launched ballistic missiles, and air dropped nuclear bombs. Meanwhile, China remains outside the major arms limitation and control conventions, such as the new Strategic Arms Reduction Treaty and the Intermediate Range Nuclear Force Treaty. And while the United States continues to talk about reducing its stockpile and the Soviets or Russians continue to talk about reducing their stockpile down to, what, approximately 1,500 weapons, the Chinese allegedly have exceeded 1,500 weapons. We do not know for sure because they do not let us know. What is the U.S. doing to counter China's modernization program, either with our own stockpile or through diplomatic channels to bring China into the fold of nuclear arms reduction?

Ms. MILLER. I appreciate the question, Mr. Calvert. I am going to leave the weapons discussion for the United States weapons side to the side for the moment because I think that is going to take a fuller discussion and probably one that has to take place in a classified setting.

With respect to China and the nuclear security regime worldwide and the United States' engagement with China and that regime, I would start by telling you that since 1998 we have been in cooperation with China on the peaceful uses of nuclear technology. We have had an agreement with them since then, and we have ongoing technical cooperation with them on proliferation and nuclear security. This is best practices. This is how to best regulate, how to best secure nuclear facilities. So that has been ongoing.

We see China as absolutely essential as a member of the nuclear security community. We have active and ongoing engagement with China—we in the NSSA. I will ask Anne to speak a little bit further about the specifics in that, but again, we see them as an important member of the P5. They are a nuclear weapons state as you point out, and therefore, for us, an absolutely essential member to engage on nuclear security issues. We believe that by engaging and sharing best practices and working with them is the best way to maintain that transparency that we seek.

Mr. CALVERT. Well, in that sense, what is your view of China's nonproliferation record? Do they have a good record?

Ms. MILLER. Go ahead, Anne.

Ms. HARRINGTON. Well, there are cases, as I am sure you are aware, of either Chinese companies or Chinese individuals being sanctioned by the United States for exports that we do not feel are appropriate or that could contribute to a weapons program in another country. But working with the government of China and working with our partners in China, which go all the way from custom service to the Chinese atomic energy agency, we have found that they are serious about their mission, as we are. They are professional in their approach. They are eager to learn. And not just learn but then apply. We have a mega ports project in Shanghai, which is appropriate given the amount of export from China to the United States. And—

Mr. CALVERT. Excuse me. In regards to proliferation, their next door neighbor does not seem to be doing too well. Is China involved in any way? I have read with amusement some of the news stories about their horror and shock when yet again Korea tested another nuclear device. Was that truly horror and shock? They had no foreknowledge at all that this was going to happen?

Ms. HARRINGTON. Well, I think all of us who watch North Korea were expecting something to happen. And I imagine—

Mr. CALVERT. So China did not? Because all the news reports said that they were absolutely shocked and surprised that North Korea had yet again tested another device. Do you believe that?

Ms. HARRINGTON. I do not think I am in a position to actually judge what the Chinese said.

Mr. CALVERT. But you were not shocked and surprised?

Ms. HARRINGTON. I was not. No.

Mr. CALVERT. So would you be shocked and surprised that the Chinese were shocked and surprised?

Ms. HARRINGTON. I am shocked and surprised at your question.

But China, like the United States, its government has many different components, and so we have been I think quite successful in engaging the components that are most important to our particular mission and to engage them in a positive manner. And I think that is what is critical at this stage. You have to build on those things. And it is quite interesting in the Nuclear Security Summit process, China is actually one of those countries that not only has offered certain initiatives but is stepping up to fulfill them, including working with us on eliminating and converting reactors using highly-enriched uranium that they originally provided to countries like Syria, Pakistan, Iran, Ghana, Nigeria. So they are actually working with us on what we think are some of those crucial issues of how do you get that material out of circulation and away from the hands of terrorists.

Mr. CALVERT. I find it interesting though that as the Chinese become more provocative, demonstrating their nuclear triad and their ability to move nuclear weapons in various ways, what is that going to do, for instance, to Japan? Is Japan the next country to proliferate, if they have not already? Do you think that in effect China is pushing them to a position in which they must—they be-

lieve that in order for their own defense they need to move toward having their nuclear arsenal?

Ms. HARRINGTON. Well, I would argue that that is one of the reasons why we need to keep our stockpile strong, our Navy strong, is to provide that umbrella to countries like Japan.

Mr. CALVERT. That deterrent. And we continue to do so. We do set deterrent. The stockpiles are getting older. We have not moved toward modernizing that stockpile.

Ms. MILLER. Well, actually we have moved toward modernizing the stockpile.

Mr. CALVERT. Not nearly as quick as the Russians, as I understand it.

Ms. MILLER. As you know, the program to continue to extend the life of the W76, the warhead that we have the most of in our stockpile, is proceeding. We have now programs proceeding for other weapons in the stockpile to extend the life of, so I would argue we are actually doing quite a bit. The fact of numbers in the stockpile being reduced is probably not the best judge of how effective the stockpile is. We have certain weapons in that stockpile that are quite old that we do not have plans to use. And we, as we all know, are trying very hard to work with the resources we have to free up money to plow back into the things we need to do. So maintaining warheads that we do not have an intention of deploying because we have not kept up, with good reason, for the platforms because we have changed our strategy argues for us to take funds otherwise used to maintain certain things and plow it into extending the life of the things that we absolutely must have in that stockpile and must know will be workable.

Mr. CALVERT. So are you saying we are doing a better job of maintaining our domestic nuclear industrial base?

Ms. MILLER. Our domestic nuclear industrial base, I do not know if you are asking me about the power of the base or what you are asking me.

Mr. CALVERT. No, about how—the conditions at Hanford—

Ms. MILLER. Well—

Mr. CALVERT [continuing]. Conditions at our facilities in Lawrence Livermore and New Mexico.

Ms. MILLER. I think it is important to—I think all of those things are important. It is important to have a warhead that is safe, secure, and reliable. I think it is important to have an infrastructure that will support it and that infrastructure includes not only physical infrastructure, but human infrastructure as well. So all of those things—

Mr. CALVERT. And we are doing a good job both—

Mr. FRELINGHUYSEN. We need to go to Mr. Fleischmann here—

Mr. CALVERT. Oh, okay.

Mr. FRELINGHUYSEN. In a second we will get back to you.

Mr. CALVERT. All right. I apologize, Mr. Chairman.

Mr. FRELINGHUYSEN. Thank you, Mr. Calvert. Mr. Fleischmann.

Mr. FLEISCHMANN. Thank you, Mr. Chairman. Madam Administrator, I just have one question. It is my understanding that both the advance test reactor in Idaho and the high-flux isotope reactor at Oak Ridge, both share the same fuel source, which they procure from B&W in Lynchburg. These reactors, I think, are the only cus-

tomers for B&W's fuel. It is also my understanding that should HIFAR be shut down the fuel costs at ATR will be increased by approximately \$9 million due to fixed overhead costs. Will these repercussions be considered when funding decisions are being made?

Ms. MILLER. Go ahead.

Ms. HARRINGTON. Okay. So the complication here is that the advanced test reactor in Idaho actually is a facility of the DOE Nuclear Energy Office and HIFAR in Oak Ridge belongs to the Office of Science. So neither one of those is directly our responsibility, but we certainly could take the question back and see if we can get you an answer on that.

Mr. FLEISCHMANN. Thank you. No further questions.

Mr. FRELINGHUYSEN. Mr. Simpson. Thank you, Mr. Fleischmann.

Mr. SIMPSON. Thank you, Mr. Chairman. On that, Admiral Richardson, could you tell me or at least provide for the committee, for the record, how much funding the program, the ATR, has received from Naval Reactors over the last five years? And can you also give us an assessment if those contributions have kept up with the cost of operating the reactor for the record?

Admiral RICHARDSON. Yes, sir, I will.

Mr. SIMPSON. You mentioned that sequestration will affect your ability to proceed with the pool and handling facility that you are talking about building out at the site. What will sequestration do in terms of delaying that facility, and what does that do to the scheduled of refueling Navy ships?

Admiral RICHARDSON. Yes, sir. So I think the best way to understand that is to understand that facility's role in the State of Idaho and also in the product line to handle spent fuel from our carriers. And so beginning with the *Enterprise* and then for the next eight years, our nuclear power carriers will be coming in on a heel-to-toe basis that will—for refueling. And——

Mr. SIMPSON. How long does it take to refuel one of those?

Admiral RICHARDSON. It is about two years for the refueling, sir.

Mr. SIMPSON. About two.

Admiral RICHARDSON. And so as they proceed through that process, that spent core is removed from the ship there at Norfolk and then transported in a container up the facility in Idaho. The current facility, the Expended Core Facility, is not optimized to handle the production rate that this pace of refuelings is going to require. That facility, as you know, sir, is over 50 years old now. It was originally built really as a research and development type of a facility, not really as a production line to move spent cores through the facility and into dry storage.

Sequestration, the program then, as a strategic decision, put together a plan to replace this Expended Core Facility with a new Spent Fuel Handling Project that would meet the requirements of the pace of refuelings and also meet the requirements to the State of Idaho for the 1995 Agreement and allow us to be more responsible with respect to meeting environmental compliance. The program is at sort of the conceptual phase of the plan right now, moving towards critical decision 1 later on in this year, a very important milestone.

Additionally, we are starting to ramp up our staffing to support getting into the more active parts of that program, including some

contractual commitments that are in jeopardy. And so all of those, I think, are vulnerable should sequestration come into effect. This will cause the program to be delayed again and also eventually cost more.

One of the more immediate costs there is that since the carriers are going to come in for refueling, those cores are going to come off to support fleet needs. And for every year that the Spent Fuel Handling Project moves to the right requires us to buy additional interim storage containers to handle that fuel until that facility is eventually rebuilt. It does not mitigate in any way the need to build that facility. And it is about \$100 million a year of some cost just to store that fuel until the facility is rebuilt.

Mr. SIMPSON. You mentioned that the strategy for dealing with the used nuclear fuel and the Idaho Governor's Agreement that requires all the spent nuclear fuel from the Navy to be out of Idaho by 2035. The new plan from the administration is they would not develop a permanent repository till 2048, so we are already 13 years behind even if it were to stay on plan. How do you plan to deal with that? Have you started or thought about negotiations with the State of Idaho to reexamine the Governor's Agreement and the 2035 date, especially since Yucca Mountain seems to be on a simmer?

Admiral RICHARDSON. Right. Yes, sir. So one of my very first priorities was to go out to Idaho, and I did, to get a chance to meet with the governor. We addressed this fact really and agreed that as this moves forward, as this issue moves forward, we will continue to stay in very close communication. Our facility manages that fuel in a very responsible manner right now, so it is stable in its current condition. And we are ready, whenever an eventual permanent repository is ready, to move that fuel to that repository.

Mr. SIMPSON. Okay. Thank you. I will wait for the next round.

Mr. FRELINGHUYSEN. Okay. Mr. Nunnelee.

Mr. NUNNELEE. Thank you, Mr. Chairman. The Defense Nuclear Nonproliferation Program traditionally carries pretty large balances from year to year, and we have asked you to look into that. You have done it. You included some information, your semiannual report. Tell me what have you done, what actions have you taken to get to the level of where you are now?

Ms. MILLER. Go ahead.

Ms. HARRINGTON. So thank you for that question. It is one that we have been working on very hard, as you know, for some time. The way we program and the way we budget and the way we report unencumbered balances is based on uncommitted and unobligated—no. Yes, so we look at what is both obligated and committed because the way we have to run our contracts, both need to be part of the calculation. For example, when we have to, say, get a replacement core for a reactor that we are converting from highly enriched uranium to low enriched uranium, we need to contract up front for that reactor core. It may take some time for that core to be built and then it may take additional time for transportation and for the installation, the removal of material. It is a complex set of contracts, all of which need to be in place and all of which have to have funding placed against them.

Getting HEU out of countries, de-inventorying countries of their entire stockpile of HEU is extremely important. And we do not leave at-risk not being able to execute those actions within a budget. And so whereas some might only look at what is unobligated, we look at what is obligated and committed as being the total of what is unavailable, and then unobligated is what is left out of that.

Ms. MILLER. So the way the budget system works, you have a contract in place against which you obligate dollars. But you may have a plan of programs, as Ann was saying, where you do not have every contract in place because you have to have one part done before the next part done, but you in your program have committed those dollars, which is why you come back to the Congress asking for additional dollars for something else, even if on the books it looks like the dollars are not committed. This is different than the typical Department of Energy program where we are simply contracting with a management and operating partner, a laboratory or that kind of thing, where we are able to obligate most of our money right up front and say we are going to spend pretty much all of it there or with a subcontractor. So right away it goes to the other side of the books and it looks like the money is obligated.

Ms. HARRINGTON. Right.

Ms. MILLER. It is different in this kind of program.

Ms. HARRINGTON. For example, last year, we reached the end of the year with only 9 percent unobligated, which is a bare minimum for making the transition from one fiscal year to the next. So we feel that we have gotten—you know, very tight control of this. Plus, part of our management philosophy here is we do not release final payments on contracts until we are sure that what we have contracted for is, in fact, going to be delivered, and we feel that is responsible to the taxpayer. So we do keep a quite tight management hand on our money until we are completely satisfied.

Mr. NUNNELEE. All right. So I think you probably answered my follow-up question. I just want to make sure I understand. Now that you have had some success at being proactive at reducing these balances, you think about 9 percent is the right amount?

Ms. HARRINGTON. We could get into a long discussion about the impact of continuing resolutions on program execution.

Ms. MILLER. That is right.

Ms. HARRINGTON. And very seriously, 9 percent is dangerous when you are in a CR situation.

Mr. NUNNELEE. I do not think you will get any disagreement from any member of this committee, Democrat or Republican, that we need to get to regular order. Thank you. Thank you, Mr. Chairman.

Mr. FRELINGHUYSEN. Judge Carter.

Mr. CARTER. Thank you, Mr. Chairman. DOE and DHS cooperate in screening, scanning U.S.-bound maritime cargo. I have got several questions. What is the current status of that cooperative effort with regard to both U.S.-bound cargo and other international cargo such as that screened through DOE Megaports Program?

It appears that 100 percent scanning and mandatory cargo will not be ours any time soon. What are DOE and DHS doing to collect

and share information about high-risk shipments? And what steps are being taken to ensure the U.S. and its foreign partners have the capability to scan cargo to meet the continuing threats of radiological and nuclear materials being shipped in commercial shipping?

Ms. HARRINGTON. Thank you for your question. We work very closely not only with the Department of Homeland Security, but with the Department of State, the Department of Defense, the Justice Department, and others in the context of the Interagency Policy Committee, the IPC, that deals with global nuclear detection architecture and counterterrorism.

So this past year, when we did the review of our second line of defense program, which includes Megaports, what we did is work with DHS and with our interagency partners to really scrub the point of diminishing returns in the Megaports architecture. So what we did was look with our interagency partners are how could we determine the most—to design a program to get the most bang for our buck and to really address the ports and transit locations that most affect incoming freight to the United States. And so that is now how we are designing our program. You are right, 100 percent is probably several tens of percents farther than we will ever be able to achieve, but based on our new analysis we feel that we are getting at the places that are most important.

Mr. CARTER. One of the problems that arises at ports we cover is transshipped between vessels and moved directly to the locations that make it difficult to use existing monitors. What is NNSA doing working with DHS, CBP, DNDO to close this security gap?

Ms. HARRINGTON. You have identified one of the real challenges to this kind of security program. As part of the second line of defense review one of the things that we looked at was what are new technologies that are coming along? What are other types of technologies? For example, mobile straddle units stripped of the lifting mechanism that can be driven around a port location or around connecting rail location; or mobile secondary inspection units, handheld units, things that you could put in a backpack, you know, while you are walking around. There are a variety of other technologies that may come on to the market in future years that would be worth reviewing, some of which we are, of course, supporting through our R&D program. So this is an area that we know is one of our biggest challenges, the transshipment element. And even though it is extremely technically challenging we continue to pursue it.

Mr. CARTER. I went with Chairman Rogers and we looked at the European ports. They privately showed us their ports they are running through. They did not particularly like the idea; they were doing it for our safety, but we pay them money, so they liked it. But then I discovered that this really is not, from what I can see, effectively being done worldwide. We cannot stop ships offshore, the Admiral will tell you that. If we do that we will never have commerce in the country.

Ms. HARRINGTON. Right.

Mr. CARTER. We have got to solve the problem because this was like one of the top priority problems when we started DHS and it

has got to happen or one of these days the Big Bang theory is going to be ours.

Ms. HARRINGTON. Well, we do——

Mr. CARTER. It is going to be a big bang.

Ms. HARRINGTON. Yeah. We do have a technical partnership between us, DNDO, the intelligence community, and the Defense Threat Reduction Agency, so that we are all trying to put our technical expertise together to try to solve some of these problems. They are not easy and not inexpensive either.

Mr. CARTER. Lots of stuff is not easy, but the consequences of something in your field are bigger than anything we have got.

Ms. HARRINGTON. Absolutely.

Ms. MILLER. That is right.

Mr. CARTER. And, you know, if it happens, the buck stops over at your table and others.

Mr. SIMPSON. And others.

Ms. HARRINGTON. Thank you, Mr. Simpson. Yeah.

Mr. SIMPSON. That is the problem.

Ms. HARRINGTON. Yeah, yeah. No ports there.

Ms. MILLER. No ports there.

Mr. CARTER. No, but this is when you are talking about security and stuff. I listened when I was in Europe and I listened here, and everybody says we will get the technology. I do not know what it takes to build a fire under folks to get the technology, but we have got to get it because the consequences are more dire than anything we have got.

Thank you. Good luck.

Ms. HARRINGTON. Thank you.

Mr. FRELINGHUYSEN. Thank you, Mr. Carter. Admiral, we anticipate at some point the President will be announcing perhaps some further reductions in our nuclear weapons stockpile. Certainly there has been a lot of back and forth and some speculation. We obviously do not have any information, but certainly there are people with a lot of information out there on the street.

Correct me if I am wrong, the Department of Defense has recently completed, I think it was last year, the Nuclear Posture Review Implementation Study and looked at many scenarios. With a reduction, how does that affect force structure, the area, where you have the greatest expertise? We have a remarkable fleet of submarines.

Admiral RICHARDSON. Right. Yes, sir. So the analysis that has been done, the excursion analysis really since there are not—you know, no final decision, has done nothing but confirm or validate the importance of the sea-based leg of our strategic deterrent triad as the most survivable and most responsive leg of the nation's strategic defense.

We see that under many of those excursions, while the overall numbers of warheads may be coming down, there would be a shift such that a greater percent of those warheads would be carried on nuclear submarines. And so we see that the responsibility of that leg of the strategic triad remains critical to the nation's defense with respect to force structure.

Mr. FRELINGHUYSEN. So with less nuclear weapons, let us say down to a thousand, you say it would not have a major effect on the Navy's force structure?

Admiral RICHARDSON. We would not see that right now, sir. There is an element of the survivability nature of that leg of the triad that is not completely linear with respect to the number of weapons. And so there is a number of force structure and a number of required submarines at sea that are required to just maintain that part of the triad viable and survivable, which really is a unique contribution to the nation's strategic triad.

Mr. FRELINGHUYSEN. Well, we recognize the unique contributions.

Admiral RICHARDSON. Okay.

Mr. FRELINGHUYSEN. I am just wondering, if there are further reductions, does that change your plans for the *Ohio* replacement?

Admiral RICHARDSON. There is currently no plans to change the Ohio Replacement Program.

Mr. FRELINGHUYSEN. It might change the configuration, I would assume.

Admiral RICHARDSON. Right now, you know, the configuration and the force structure are both what would remain on track with the current plan.

Mr. FRELINGHUYSEN. So the timetable now on track is still a delay. Do you anticipate—

Admiral RICHARDSON. With the original two-year delay, yes, sir.

Mr. FRELINGHUYSEN. Do you anticipate more under the sequester situation?

Admiral RICHARDSON. Sir, in a sequester situation—

Mr. FRELINGHUYSEN. We are on your side. I am just wondering—

Admiral RICHARDSON. Yes, sir.

Mr. FRELINGHUYSEN [continuing]. Whether we are going to wake up some day—

Admiral RICHARDSON. Absolutely.

Mr. FRELINGHUYSEN [continuing]. And we are going to find this program, which we need.

Admiral RICHARDSON. Right.

Mr. FRELINGHUYSEN. We need these replacements.

Admiral RICHARDSON. Right.

Mr. FRELINGHUYSEN. You know, but out a few more years.

Admiral RICHARDSON. Yes, sir. The consequences of a sequestration would require really a strategic review of the nation's strategic posture. And within that review, I think it is impossible to guarantee that any program could be completely protected. And so while the CNO, as you know, sir, has made this his number one acquisition priority, and we would do everything we could to mitigate any effects on this program, it is impossible to guarantee that under sequestration.

Mr. FRELINGHUYSEN. Yeah, he made it that clear across the way here an hour or so ago.

Admiral RICHARDSON. Yes, sir.

Mr. FRELINGHUYSEN. Well, keep us posted.

Admiral RICHARDSON. Yes, sir, we will.

Mr. FRELINGHUYSEN. All right. Ms. Kaptur—or Mr. Visclosky, are you ready? You want Ms. Kaptur to bat warm-up here for you? I know you are loaded, right, Mr. Visclosky?

Mr. VISCLOSKY. As are you, Mr. Chairman.

Ms. KAPTUR. Thank you. Administrator Miller, in terms of the second line of defense, your agency has completed its review and could you tell our members the results of your inward assessment and the future of that program? What have you learned?

Ms. MILLER. So I will just say to open I am going to ask Anne to speak specifically to it because she was a member of the inter-agency group that conducted the review. Overall, the support for second line of defense for the activities is strong in the interagency and we expect that to go forward as a strong program, as a strong component of our overall efforts to detect and contain material worldwide.

What the review, I think, I would say gave us was a sense of the best way to go forward given where we are right now after years of work in this area. What is the best way now to go forward? What do we actually have to do right now?

You want to speak from that end?

Ms. HARRINGTON. Right. And I got to some of that response when Mr. Carter asked about the detection out of ports. But, yes, the SLD Review, I would have to say we are very pleased with the outcome of that review. You know, as Neile is fond of saying, in a couple of years we are going to be 15 years old and any kind of responsible program management takes a step back periodically, looks at the programs, reevaluates, reassesses, reprioritizes, and looks at where those programs fit in the broader context of what we are doing both within the United States and with partners around the world. And so that is exactly what we did during this deep dive on this program.

So one of our important partners, of course, is DNDO within the Department of Homeland Security. So we collaborate routinely with our interagency partners on equipment assessments and developing technical standards and threat assessments and sharing test results. We intensified all of that discussion during this past year and we also, as I mentioned, took a look at what other technologies were available. We took a look at risk profiles, even the environment of different risk areas where there is a lot of trafficking or suspected trafficking of materials, and did an analysis to see what fit best where in terms of its expected performance and, you know, its detection capabilities.

As we were undergoing our own review, the White House, in the sub IPC that was looking at global nuclear detection architecture, was undertaking a review as well. And so the two reviews got merged and the result was a very nice selection of areas where our programs could fill specific capabilities and gaps within a broader interagency program. So now we go forward into a new phase of the program where we are using a different mix of technologies. We have reprioritized within the whole interagency spectrum and have a very clear role to play now in a larger effort. So I think overall we are quite satisfied with how the review came out.

Ms. MILLER. I would just add to what Anne said about the value of looking at these programs so many years into them and under-

standing at this point, as we discussed earlier about Russia, where countries are now mature either in their own capabilities and, therefore, their ability to step up and be more of an actual partner with us as opposed to an assistance recipient, as well as their interest and willingness to either go out themselves with us and help us do these things in other countries or provide us the funding to be able to do it. And we have a very good program to accept funding from countries that might not on their own be able to do this effort without the United States Government in a third country, but want to help the cause.

Ms. KAPTUR. If material has been found as a result of these efforts or scanners, is that generally reported? I mean, is that the sort of thing you might just pick up in the press in some country?

Ms. HARRINGTON. Hopefully not.

Ms. MILLER. No.

Ms. HARRINGTON. The sharing of that kind of information is usually done on a very confidential basis. Now, sometimes things will hit the press that have come through our detection systems. There was, I think, sometime last year or the year before brushed steel tissue box covers that were radioactive because they had picked up scrap metal and the scrap metal had a radioactive source mixed into it and then they manufactured it. It got put into a container and shipped toward the United States and got stopped because it hit one of these transit ports where our alarms went off and, you know, we were able to get a team on the ground and ascertain which part of the shipment was radioactive, and then it goes back to the country of origin for disposition.

So those kinds of things we do hear about and those get into the open press. The more sensitive information, though, is usually handled through intelligence channels.

Ms. KAPTUR. In terms of the actual radiation scanner, detectors, do you have a way of verifying what is actually going on in a host country or do we just listen to the host country?

Ms. HARRINGTON. We offer a help desk that works with our detection installations, so most countries where we have detectors installed there is a local service provider and we get information from those systems through that on a very regular basis. And that allows us to make sure that the equipment remains calibrated, it lets us identify when something is malfunctioning. So we actually have quite an extensive view into the performance parameters of the actual equipment.

Ms. KAPTUR. And finally, let me just ask on this round, Admiral Richardson, as you look to the future, with everything you know about nuclear power, if Idaho is not comfortable at the moment with additional expansions down the road even though you are in discussions with them, and Yucca Mountain does not want the commercial spent fuel, what do we do as a country in order to either reduce the amount? Which efforts at scientific inquiry to try to reprocess this? Where is the best research being done on that?

As you look to the future, 50 years from now, where are we going to be? Delaying, as the Chairman said or one of the members said, you know, a delay another 18 years or 25 years? You know, it seems like we do not have a good answer here.

Admiral RICHARDSON. Right. Ma'am, I am certainly not the most qualified person at this table to talk about that. I will say that, you know, our commitment, as always, has been that as this situation evolves and, hopefully, matures towards a responsible final depository, all along the way we will remain committed to the people not only of Idaho, but of the United States and the environment so that we can move through this dynamic process in a very responsible way, maintaining safe and responsible production of these spent cores throughout, and remain ready to move out to any final answer that we come to.

Ms. KAPTUR. But could I ask any panelist based on where research is being done in our country or elsewhere right now, where do you see the scientific horizon moving in order to help us to minimize the amount of material that is left over afterwards or, magically, neuter it, right? And where is that research being done?

Ms. MILLER. I will just say straight out I think there is a bit of discomfort here on our side because we know we have colleagues who are far better placed to answer your question, Ms. Kaptur.

Ms. KAPTUR. Right.

Ms. MILLER. But I will tell you that there is important work going on, but it is going on in a lot of places. This has been the Holy Grail of people who deal with nuclear from the beginning and over the last years, and I have been around the waste programs since the 1980s myself. And it has always been the thing that people have been most interested in this, how do you take it? And I think it has been one of those things that has been just close enough that people believe we are going to get there and so I know that is somewhat similar to what we said about detection, but it is actually connected. And I think there is quite a lot of good work, both going on and planned. Unfortunately, it is going to be another one of those things that hits people in the face from the perspective of funding. So I would, at that point, defer to my colleague, Assistant Secretary Pete Lyons, to be the best source of information on that.

Mr. FRELINGHUYSEN. We can get you together with Pete Lyons.

Ms. MILLER. Yes.

Ms. KAPTUR. Yeah. I say this in physics, this was so many years ago. You know, I thought here I am at this point and we still do not have any other end to this chain reaction, you know. We cannot neuter the thing.

Ms. HARRINGTON. But your question is a great demonstration of why it is so important not to view it as a naval reactors problem or nonproliferation problem or a utilities problem. It is our problem.

Ms. KAPTUR. Scientific.

Ms. HARRINGTON. And we work, in fact, very closely with Pete Lyons and the Office of Nuclear Energy on a whole suite of studies and other activities, and I am sure he would be very happy to come up and visit with you.

Mr. FRELINGHUYSEN. Thank you, Ms. Kaptur. Mr. Visclosky.

Mr. VISCLOSKY. Thank you, Mr. Chairman. I apologize to the—

Mr. FRELINGHUYSEN. You went and got lunch, right? Is that what—

Mr. VISCLOSKY. No, sir. No.

Mr. FRELINGHUYSEN. You did not? No lunch?

Mr. VISCLOSKY. Lunch is in back again. As soon as I am done—

Mr. FRELINGHUYSEN. I got it.

Mr. VISCLOSKY [continuing]. I am hitting one of the doughnuts.

Mr. FRELINGHUYSEN. All right.

Mr. VISCLOSKY. I do apologize for being here late. It is not lack of interest, I was just tied up.

A couple of things. One, I understand that the chairman has already addressed in the questions, and you probably have in your testimony, the issue of the Nunn-Lugar program?

Ms. MILLER. Yes.

Mr. VISCLOSKY. And despite the fact that that is someone I have a profound respect for, Senator Lugar is no longer in Congress. Senator Nunn is not. I would also want to emphasize having a strong empathy for that program. I think it has been wonderful and deeply supportive. And understand, we have problems with the host country, but whatever we can do, I certainly would want to be supportive of that program.

Ms. HARRINGTON. Thank you.

Mr. VISCLOSKY. I also understand that Mr. Alexander has broached the issue of MOX and the plutonium feed stock. It is no secret that when Mr. Hobson chaired the subcommittee, he and I were opposed to MOX in the first instance. It exists, and so my concern now is that it is managed as efficiently and cost effectively as possible.

Ms. HARRINGTON. Okay.

Mr. VISCLOSKY. And again, understand, that has been covered, but would be remiss if I did not emphasize that.

Ms. HARRINGTON. I appreciate that. Thank you.

Mr. VISCLOSKY. The one question I do have—

Mr. FRELINGHUYSEN. It has been somewhat covered. I think that—

Mr. VISCLOSKY. Yeah, I know. I just wanted to add my voice.

Mr. FRELINGHUYSEN. It has been covered, but—

Mr. VISCLOSKY. Just one question, Admiral Richardson, and that is on industrial base. Earlier this morning we had the Joint Chiefs upstairs and Admiral Greenert mentioned that, as an example, talking about the impact on industrial base with continuing resolution sequestration, that his testimony said that approximately 90 percent of our nuclear components come from sole source suppliers. Would you want to discuss that and the concerns that gives you as far as the industrial base and the issue of cost and competition?

Admiral RICHARDSON. Yes, sir. That is a true statement. The nature of the work, the magnitude and complexity of the work, and the capital investment required to do this sort of work naturally narrows that market down to very, very few contenders. And we have had a relationship since the very beginning of the program with our suppliers, many of which are sole source suppliers. We manage that very, very carefully in terms of continuing to work with them to provide the most cost-effective solutions on those things. We use as much flexibility as is permitted to look for opportunities in the market to buy at the right price points and to level the market to get the most efficient use of those facilities. We work

very closely in terms of inspections and oversight to make sure that those components from our sole source suppliers remain competitive. But it is just the nature of the business, sir, that there is just not a lot of competition.

Mr. VISCLOSKY. Competition.

Admiral RICHARDSON. Yes, sir.

Mr. VISCLOSKY. Admiral, thank you. Thank you, everybody. Thank you, Mr. Chairman.

Mr. FRELINGHUYSEN. Mr. Simpson.

Mr. SIMPSON. Thanks, Mr. Chairman. I can tell you, Ms. Kaptur, where a lot of that work is done on fuel cycles: in Idaho. And we invite you out to look at what they are doing in trying to address those concerns that you just raised. Very important work that is being done out there under the Office of Nuclear Energy headed by Mr. Lyons.

A couple of questions. When we talk about megaports, are we having any problems in those countries that have been involved in the Arab Spring? I am thinking of Alexandria in Egypt. How is the relationship going there in terms of the megaports that we are operating in those countries?

Ms. HARRINGTON. Although there is currently no Megaports work in Egypt, our partnership in the region remains strong. But, in general, our work in a number of countries in the Middle East is challenged because of the current instability there. So the State Department is cautious about granting clearance to travel to a number of countries, but we continue to look at ways to both support and expand activities. Obviously, if you look at the situation in Syria, this is another place where we will be expected to contribute in any post-evolution environment that evolves there.

Mr. SIMPSON. And the tough thing is it is easy for us to say we need to inspect every cargo container that comes into this country until you go out and look at it. If you want to bring industry and commerce to a standstill, that would do it for sure.

Ms. HARRINGTON. Exactly.

Mr. SIMPSON. Ms. Harrington, I want to thank you for coming to Idaho, and I would invite you back to come, actually, in July, August, September. You will have a whole different opinion of Idaho.

Ms. HARRINGTON. Idaho in the winter is beautiful.

Mr. SIMPSON. And we can do some fishing, too.

Ms. HARRINGTON. It is very nice.

Mr. SIMPSON. Yeah, as long as you are inside. In light of the recent press stories about large-scale cyber-hacking attacks, can you tell me about your plans for including cybersecurity protections into your nonproliferation programs and how the INL's capabilities might contribute to that effort?

Ms. HARRINGTON. Excellent question. Cybersecurity has become probably one of the most raised topics in our nonproliferation discussions with our colleagues. I think that countries around the world are really beginning to appreciate the full scope of threat that cyber attacks represent, so we are looking at ways to incorporate that. We have a CIO in NNSA who, of course, is looking into that on our own behalf, but also can inform us about what we can discuss. It is a very challenging topic to raise with international partners without getting into areas that reveal your own defenses

and so forth, so it is an area that we have to approach with caution. But, on the other hand, we also want countries and private companies within those countries that are part of their nuclear structure to be very aware of what the threat is, to not be too cavalier about what can prevent the threat.

I was, in fact, very impressed with the work that is going on in Idaho. And, as you know, we work very closely with your team there.

Mr. SIMPSON. Right.

Ms. HARRINGTON. And I think I have managed to tap into some of their expertise for some upcoming consultations with one of our European friends so that we could share some of those insights and the expertise that you have there, so thank you.

Mr. SIMPSON. Good. Well, along the same lines, Administrator Miller, there is language in the recently enacted Defense Authorization bill requiring a study of the multiagency governance model for national security laboratories. There is a fear among some that this effort could disadvantage any non-weapons labs from doing work for DOD and DHS and the intelligence community. Can you comment on this provision, and assure us that whatever we do in the effort would not hinder the agency's ability to work across all of the labs for the DOE national complex?

Ms. MILLER. Yeah, Mr. Simpson, I am happy to respond to that. I would be hesitant to comment on the legislation because I was not the author of the legislation and, without passing any judgment about intention or the result of it, I would say that from our perspective—and here I would speak on behalf of the Executive Branch—we do not see either that legislation posing a barrier to the kind of work we do on a regular basis, which is to work where the best work is and to work with whatever lab is the best place to work, and—

Mr. SIMPSON. That is all we would ask you to do actually. It is because there has always been a little bit of competition.

Ms. MILLER. Yes, there is.

Mr. SIMPSON. And a little competition is not a bad thing—

Ms. MILLER. Right.

Mr. SIMPSON [continuing]. Between weapons labs and the other labs.

Ms. MILLER. Right.

Mr. SIMPSON. All we ask you to do is to look at where the best work is going on and use it and use our complex. It is a wonderful DOE complex we have over at our national laboratories and we need to use them to their full capabilities.

I thank all of you for the work you do. It is very important work and I know you are doing a great job and I appreciate it very much. Thank you.

Ms. MILLER. Thank you very much, sir.

Mr. FRELINGHUYSEN. Mr. Simpson. Judge Carter.

Mr. CARTER. Thank you, Mr. Chairman. NNSA, with DND, has been deploying its aerial measuring system to establish radiological background signatures in urban areas and in areas of contamination to potentially detect lost radioactive sources, for example, to prevent the risk of material to be used as a dirty bomb. What is

the status of this effort and what plans does NNSA and DNDO have to expand it in the United States?

Ms. MILLER. Well, we do not do any surveillance of activity here with our planes, so—

Mr. CARTER. But you are sharing the data, though, right?

Ms. MILLER. We do have an on-going cooperation with DNDO, but none of the NNSA assets are used to surveil places in this country unless it is in the event of an emergency that has not occurred. So we have assets that we can deploy, but we are not planning to deploy them unless there is a requirement for it, which currently does not exist.

Mr. CARTER. Well, I have an interest in aerial assets because I am the chairman of the Subcommittee on Homeland Security and we need to be able to do some aerial surveying. We have got a lot of country to cover and I was wondering, do you have enough knowledge of the program to know whether you feel like you are getting effective results from this aerial—

Ms. MILLER. So we are getting effective results. As you may know, our assets were among the first on the ground in Japan after Fukushima. And I say on the ground when, in fact, there were aerial assets, but the ability of those assets to be deployed within hours, a day or so after that event took place, was a huge contribution to the ability to model what was going on in the atmosphere there and where things were going. But I think it would serve your question better for me to take that for the record and get back to you about that.

Mr. CARTER. Okay, that would be great.

Ms. MILLER. In consultation with our emergency response group that has the assets.

Mr. CARTER. I would like to know because when we really come down to it, a nuclear event where somebody smuggles a bomb into this country or materials for a dirty bomb, it is probably going to come from across the borders. There are lots of land borders and lots of sea borders and areas you can bring them in, and we may get the tip—

Ms. MILLER. Right.

Mr. CARTER [continuing]. But would we be in the right spot, and that is where aerial has to come in.

Ms. MILLER. So, let me be clear, we have a very highly developed program of emergency response that is well tested and is regularly tested and it is specifically staffed to be able to respond to emergencies in this country, and, again, regularly we tested with those aerial assets that we are talking about.

Mr. CARTER. We will visit about this.

Ms. MILLER. Thank you.

Mr. CARTER. Thank you.

Mr. FRELINGHUYSEN. Thank you. Ms. Miller, you said you are committed to the MOX. I say this carefully.

Ms. MILLER. As will I.

Mr. FRELINGHUYSEN. Are you and Ms. Harrington also committed to controlling some of the costs associated with it? Can we talk about that for a few minutes? I do not think we can have a hearing here without having a better understanding as to why the costs have risen. We have charged the GAO with taking a look over

your shoulder, so could one or both of you comment for the record as to where we stand here?

Ms. MILLER. With regard to the causes of the costs that are the basis—

Mr. FRELINGHUYSEN. Yes, primarily, yes.

Ms. MILLER. Yes, yes.

Mr. FRELINGHUYSEN. If you could take a few minutes and run us through where we are here?

Ms. MILLER. So we are in the middle of the analysis of a baseline change proposal for that project, so for that purpose, because that has not been fully vetted through us yet, I am reluctant to give you a number. There are a lot of numbers floating around out there, but I think it is very safe to say that we are looking at a considerable cost increase.

Mr. FRELINGHUYSEN. So where are you in the process?

Ms. MILLER. Close to being complete. Close to being complete.

Mr. FRELINGHUYSEN. You are.

Ms. MILLER. And, again, I believe that your staff has been briefed by the members of the department that outside of the NNSA regularly review these baseline change proposals. So we are expecting a significant cost increase.

With regard to what has caused this? Not surprisingly, I would not give you one answer. I would say in broad categories you could look to, certainly, the project management part of this. And that is one of the reasons why when I spoke to the committee the last time I had told you the emphasis that NNSA began placing on managing the project, together with managing the contract, and the need and the effect of doing so, but we have had project management challenges.

I would point to the fact that over time the technology development to do this project, which is to say to produce mixed oxide fuel from weapons-grade plutonium—which was new really, although MOX itself was not new—that posed challenges that the people that we hired to do could only anticipate just how significant those challenges would be and what kind of technology development would be required.

Mr. FRELINGHUYSEN. So they under—

Ms. MILLER. I think they did the best they could at the time with the information they had when they were asked to do the project. But because it was first of a kind, that effort—again, turning weapons-grade plutonium into MOX—I think that, you know, they did the best they could.

I would also point to the well-known problem of the nuclear industry in this country having degraded in terms of its capability. Having gone 30 years or so without a new construction project where people are working toward the NQA-1 standard for nuclear work.

Mr. FRELINGHUYSEN. It is a pretty remarkable workforce—

Ms. MILLER. Yeah, right.

Mr. FRELINGHUYSEN [continuing]. That sometimes come out of the ranks of the Admirals.

Ms. MILLER. Right. But the supply chain, which is stretched across the country, is definitely the challenge.

Mr. FRELINGHUYSEN. There is no room for error here. You have got to get it right the first time, right?

Ms. MILLER. Absolutely, and it has been extremely challenging because people are, simply put, out of practice and have had to take much longer than anybody would have anticipated to be able to do the things so that they would meet the standards that the facility itself requires. And, as you know, it is a Nuclear Regulatory Commission-regulated facility, so there are no exemptions here. It has to meet the standards and that has been very challenging.

And then finally, the fact that we have nuclear power projects finally going in this country——

Mr. FRELINGHUYSEN. Thank God.

Ms. MILLER [continuing]. Has, in fact, on the other end of the supply chain, begun to siphon off skilled workers to those projects.

Mr. FRELINGHUYSEN. Yeah.

Ms. MILLER. So all of this together has combined to have made the original estimates for what it would take to do this project no longer valid.

Mr. FRELINGHUYSEN. So, when we talk about a re-baseline process——

Ms. MILLER. Yeah.

Mr. FRELINGHUYSEN [continuing]. Is it going to morph into another—I mean, are we still going to have a contract here or is it “things are subject to change” here, even after all of this?

Ms. MILLER. I think the people who are doing that baselining are doing the best they can to come up with the bounds of what that is likely to take. And I would be, myself, very careful to sign up and swear to a number knowing that the variables I have just discussed and others will continue to play in this project.

Mr. FRELINGHUYSEN. Yeah, all of the things we have to do on this committee, given limited funds.

Ms. MILLER. Right, yeah.

Mr. FRELINGHUYSEN. I mean, that is why we are here.

Ms. MILLER. Including the fact that you build——

Mr. FRELINGHUYSEN. We do not want this to suck up everything here.

Ms. MILLER. Right, and you build a——

Mr. FRELINGHUYSEN. A lot of things we need to do, cleanups and this and that.

Ms. MILLER. That is right. That is right, this is a very expensive project.

Mr. FRELINGHUYSEN. Ms. Kaptur.

Ms. KAPTUR. Yes, I have my final question for Admiral Richardson. Just in terms of our nuclear submarine capability, if you are on a scale of however you want to describe it——

Admiral RICHARDSON. Yes, ma'am.

Ms. KAPTUR [continuing]. How great an advantage does the United States have over any other country in the world based on our current force?

Admiral RICHARDSON. I think that, ma'am, to answer your question, we currently enjoy a dominance in the undersea domain. And it is the Navy's intent, and the CNO has been very clear on this, that we will watch our potential adversaries very closely to make

sure that we maintain that dominance. That dominance is a national treasure, an asymmetric advantage.

Having said that, you know, other nations are continuing to develop and their navies are continually developing, including their undersea forces, and so it is something that we continually have to guard and treasure. It is nothing that we can take for granted at all. And if that scale should tip, that would be a loss of a significant advantage of the United States' abilities.

Ms. KAPTUR. Are we twice? Are we 10 times? Are we three times?

Admiral RICHARDSON. Yeah, very hard to sort of describe it in that way. I would say that we have a clear advantage right now, but there are people who recognize that advantage and are making every advancement they can to challenge it.

Mr. FRELINGHUYSEN. If the gentlewoman would yield—open sources obviously point to some pretty remarkable goals that the Chinese have in terms of their submarine fleet.

Admiral RICHARDSON. Right. Yes, sir. And the Russians have also had some active programs going on as well.

Mr. FRELINGHUYSEN. Yeah, I mean, it is pretty amazing what is out there.

Admiral RICHARDSON. Right.

Mr. FRELINGHUYSEN. And some of them are diesel and some are, right, nuclear? I am not sure what the mix is, but tell.

Admiral RICHARDSON. Yeah, there is a full mix from just solely diesel to air-independent types of vehicles to nuclear submarines. And both the Chinese and the Russians are—even in open press, have made significant advancements.

Mr. FRELINGHUYSEN. And we are obviously supportive of you.

Admiral RICHARDSON. Yes, sir.

Mr. FRELINGHUYSEN. But it is difficult for us to get many subs out the door given what we have been through here lately.

Admiral RICHARDSON. Yes, sir. Well, all of that is, again, a vulnerable part, very vulnerable in light of sequestration. And so just as we are getting to two per year *Virginia*-class submarines, then this puts all of that in grave jeopardy.

Mr. FRELINGHUYSEN. Yeah, obviously we have a very valuable industrial base all along the line here.

Admiral RICHARDSON. Very fragile.

Mr. FRELINGHUYSEN. A lot of big guys as well as smaller people who are hanging on by their fingertips. Excuse me for taking your time.

Admiral RICHARDSON. Congressman Visclosky highlighted the vulnerability of that industrial base whereas 90 percent is sole source and they are relying on this business plan being executed. That is how they have managed their workforce, their material, and their subcontractors, sub-tier contractors.

Ms. KAPTUR. Well, in any race you need to know what the handicaps are, so I was very interested in your assessment of what the field looks like right now.

Admiral RICHARDSON. Yes, ma'am. Ma'am, if you will allow me to also circle back to your earlier question about the life cycle and what we can do 50 years hence? If you do take a life cycle approach, another thing we can do to minimize the amount of fuel at

the end of the cycle is to minimize the amount of fuel going into the beginning of the cycle. And so one approach we have taken is, you know, if you go back to the beginning of the program, we were basically refueling a reactor core every two years. At the end of two years we would have to—that would be a spent core. By virtue of the research that has been done since that time, you know, the *Ohio* replacement reactor core will last 40 years and so, you know, a times 20 reduction in the eventual spent fuel that we will have to manage at the other end of that cycle.

Ms. KAPTUR. Thank you. Thank you all very much and thank you, Mr. Chairman.

Mr. FRELINGHUYSEN. Well, thank you very much, Ms. Kaptur. To just give you a pat on the back, the Defense Nuclear Nonproliferation Programs have historically carried larger unspent balances from year to year, and I think you have provided us with some reports on those balances and progress in reducing them. God only knows where that plays into the overall budget scenario here, but here you are, let us say, coming aboard and providing us with the information at the very time that we are making some pretty significant decisions, so we are appreciative of that effort.

Mr. SIMPSON. Mr. Chairman.

Mr. FRELINGHUYSEN. Yes, Mr. Simpson.

Mr. SIMPSON. If I could ask Administrator Miller, assuming sequestration takes effect Friday—and I think most of us think it is going to happen; we do not know how long it is going to go or what is going to happen with it—how much flexibility do you have within your budgets to address this? Not suggesting that flexibility would relieve all the problems of sequestration, but how much flexibility do you have? And would it be helpful, as long as it is going to take effect, to at least be able to switch from highest priority functions to lowest priority functions and prioritize?

Ms. MILLER. Mr. Simpson, the answer to that is this. Under the rules of sequestration, of course, I have no flexibility. So sequestration, in and of itself, as you know, is hitting program and project all the way down: 7.7 percent for us. I have no flexibility.

Mr. FRELINGHUYSEN. That is what it is, 7.7 percent?

Ms. MILLER. 7.7, almost 8 percent, all the way down the line. So, unfortunately, many people, as you know, believe this is a haircut off the top.

Mr. FRELINGHUYSEN. Yeah.

Ms. MILLER. And it is definitely not that.

Mr. FRELINGHUYSEN. Yep.

Ms. MILLER. For the Weapons Activities Account, which funds defense programs and several other things, but does not fund either naval reactors or nuclear nonproliferation, for the Weapons Activities Account, under the current continuing resolution, I have reprogramming authority. I have an anomaly, first of all, that has me operating at the President's proposed 2013 budget, and within that I have flexibility to reprogram.

If I have a similar anomaly for the follow-on continuing resolution, I will be able to, with flexibility and an anomaly, I will be able to do some movement of money with the committee's agreement on a reprogramming basis. However, I do not have any such authority

for these programs right now or my colleagues sitting on either side of me.

Mr. FRELINGHUYSEN. Yeah.

Ms. MILLER. So that is why we want to be very, very clear that reprogramming authority, any reprogramming authority, gives us some relief, but nothing on the scale of what we will need to fix this.

Mr. FRELINGHUYSEN. Right. Okay. Thank you. Just for the record, your goal is to secure vulnerable materials overseas in four years. Is that still achievable—

Ms. HARRINGTON. Yes, we believe so.

Mr. FRELINGHUYSEN [continuing]. Given the Budget Control Act and sequester or is that going to change, too? Of course, we do not have the benefit of the Administration's budget, so, of course, that is another factor there.

Ms. HARRINGTON. Right.

Mr. FRELINGHUYSEN. But relative to the BCA and sequester?

Ms. HARRINGTON. Well, currently, before your effort on highly enriched uranium, we are at 3,520 of our target of 4,353 kilos, so we are roughly three-quarters of the way through. We have several countries that will de-inventory this year: the Czech Republic, where the whole four-year effort began; Vietnam. So, we have other shipments that are due this year. We are optimistic that we can still stay on schedule because much of this work, as you would expect, has a long lead time, so it is not like we are starting it tomorrow.

Mr. FRELINGHUYSEN. It is important.

Ms. HARRINGTON. But certainly other parts of our efforts would look at having to slip forward into the future.

Mr. FRELINGHUYSEN. Yeah, well, this is a goal we need to achieve.

Ms. HARRINGTON. Yes.

Mr. FRELINGHUYSEN. Sooner rather than later.

Anything else? Thank you very much, everybody, for being with us.

Ms. HARRINGTON. Thank you.

Ms. MILLER. Thank you very much.

Mr. FRELINGHUYSEN. Oh, Mr. Simpson wants—

Mr. SIMPSON. You do have reprogramming authority for non-proliferation and naval reactors, is that right?

Ms. MILLER. Under the CR we do not have that.

Ms. HARRINGTON. No.

Mr. FRELINGHUYSEN. I think you do.

Ms. HARRINGTON. We do?

Ms. MILLER. We do.

Mr. FRELINGHUYSEN. Yes, you do.

Ms. MILLER. Oh, we do?

Ms. HARRINGTON. If he says we do, we do then.

Mr. SIMPSON. The reprogramming is not the same as your having flexibility to move money around to some degree. With reprogramming, you have to have the approval of the subcommittees and sometimes that is not as easy as you think.

Ms. MILLER. Correct. I do have the ability to move some money around, but what I was really speaking to was the degree to which

I would need money to assure that my programs were taken care of, I do not have that.

Mr. SIMPSON. Yeah, okay.

Ms. MILLER. Right?

Mr. FRELINGHUYSEN. No, the Secretary of Energy actually has some extraordinary powers relative to national security.

Ms. MILLER. That is correct.

Mr. FRELINGHUYSEN. Which I think will override a lot of—

Ms. MILLER. And this I mentioned, I think, the last time I was up here. I do have, if I declare it for national security purposes, I actually do not—I think the administrator has the authority to do it. We have, I think, it is up to 5 percent can be moved among the four accounts that I have, but that, too, as I recall, will require a notification here.

Mr. FRELINGHUYSEN. Okay. All right.

Ms. MILLER. Okay?

Mr. FRELINGHUYSEN. All right. Okay, well, we stand adjourned. Thank you very much for the responses.

QUESTIONS FOR THE RECORD
SUBCOMMITTEE ON ENERGY AND WATER DEVELOPMENT
HOUSE COMMITTEE ON APPROPRIATIONS

NATIONAL NUCLEAR SECURITY ADMINISTRATION:
DEFENSE NUCLEAR NONPROLIFERATION AND NAVAL REACTORS FISCAL
YEAR 2014 BUDGET HEARING

FEBRUARY 26, 2013

NAVAL REACTORS

UPDATE ON OHIO-REPLACEMENT SCHEDULE

Subcommittee. In FY13, we were informed that the Navy would defer the first procurement of the OHIO-Replacement by two years in order to meet the constraints of the Budget Control Act. As a result, your budget request for development funds went down.

In the event of sequestration, will the Navy be forced to slow down development and delay procurements further?

Admiral Richardson. The FY13 budget request delayed the OHIO Replacement program by two years. As a result, the FY13 budget request was lower than the FY12 request. Therefore, even under sequestration, there is adequate funding for the DOE-funded reactor plant design work needed in FY13.

The Land-based Prototype Refueling Overhaul is important for the OHIO Replacement program in that the core that will be used for this refueling is also being used to validate new materials and manufacturing processes that will enable the life-of-ship core for the ORP. The reductions from Sequestration would force me to eliminate funding for manufacturing development that would then need to be funded by OHIO Replacement. The reduced funding levels would also delay the overhaul by 18 months, which would ultimately result in a shortfall of 1300 sailors trained to operate our propulsion plants in the operating fleet beyond 2020.

These impacts, as well as others across Naval Reactors' programs, could be mitigated significantly if I have the flexibility to direct my funding towards our highest priorities.

The Navy is evaluating the specific impacts on all of its programs. Sequestration will necessitate a review of the national security strategy in light of reduced resources.

Subcommittee. Can you speak more on how your work on the early development of the OHIO-Replacement might change under sequestration?

Admiral Richardson. Our goal is to keep early development of OHIO Replacement on track, to support the aggressive timeline for this critical shipbuilding program. As the CNO has stated, the OHIO Replacement remains the Navy's highest shipbuilding priority. Navy leadership is committed to using all budget flexibility available to achieve on-time construction beginning in 2021, ensuring the first deterrent patrol in 2031 and an uninterrupted at-sea nuclear deterrent.

NAVAL OPERATIONS AND SEQUESTRATION

Subcommittee. Admiral, we understand the Navy is going through great pains to assess the impacts of sequestration on operations. One thing we've heard is that there may be some changes to shipyard operations. Naval Reactors funding provides some of the supporting funding for the Navy's shipyard refueling and decommissioning operations.

How will the Navy's changing shipyard schedule impact the Naval Reactors program?

Admiral Richardson. The nature of Naval Reactors work is not directly dependent upon specific shipyard maintenance or ship deployment schedules. Therefore, the work is still required, regardless of shipyard schedules. Department of Energy funded work for shipyard refueling and decommission operations supports work including:

- prototype maintenance at the Kesselring site;
- lead design yard work such as planning, technical requirements generation, procedures and testing;
- emergent reactor plant issues in support of the operating fleet;
- shipping waste generated during decommissioning and decontamination.

We will feel the impacts of sequestration in the execution of this work. Hiring freezes, elimination of temporary personnel, reduced overtime, and potential furloughs will result in our work taking more time to execute. The ultimate cost is reduced operational time as the fleet waits longer for issue resolution.

Subcommittee. How does Naval Reactors support these operations and what funding is paid for through the Department of Energy?

Admiral Richardson. Naval Reactors' DOE funded support for shipyard refueling and decommissioning operations is limited primarily to prototype maintenance at the Kesselring site, lead design yard work, and shipping waste generated during decommissioning and decontamination.

Subcommittee. What other operational challenges are you facing with sequestration?

Admiral Richardson. Naval Reactors' fleet support responsibilities are impacted by sequestration. In response to the continuing resolution and in anticipation of sequestration, the Naval Reactors' Department of Energy laboratories have curtailed hiring. In total, sequestration would result in approximately 120 fewer people hired at our laboratories, and approximately 400 fewer jobs at the laboratories' sub-contractors. This is causing shortages of critical technical skills in some areas and is impeding knowledge transfer from those retiring. Additionally, the backlog of routine fleet support work is growing due to shortages in key skills.

Further, delay to the Land-based Prototype Refueling Overhaul will erode the Navy's ability to train enough qualified sailors to operate reactor plants on aircraft carriers and submarines beyond 2020.

In order to maintain our nuclear standards and stewardship as a result of sequestration, I will have to take action to ensure our primary regulatory responsibilities are maintained by reducing or slowing the amount of some nuclear work, such as maintenance at the Land-based Prototypes, that is done throughout our program. Within the Navy Shipyards, the production role of the shipyard will be diminished as they have to come through money-saving efforts such as furloughs and reduced overtime that in the end provides less operational capability to the Navy.

All of these measures may potentially restrict the operation of nuclear-powered warships if Navy resources are not available to properly conduct nuclear work.

IMPACT OF POTENTIAL STOCKPILE REDUCTIONS ON SUBMARINE FLEET

Subcommittee. Admiral, I am very concerned about the news that the President has been considering further reductions in the nuclear weapons stockpile. We haven't yet been provided with any information or analysis that would show how the Administration might carry out more reductions. Since the Navy's W76 warhead is a very large part of our deployed arsenal, it begs the question of how much would the Navy's fleet of ballistic missile submarines be impacted by a major nuclear weapons reduction proposal.

How might a reduction in our deployed nuclear forces down to 1,000 impact the Navy's force structure? Does that inevitably mean fewer ballistic missile submarines?

Admiral Richardson. I don't want to speculate on any hypothetical changes to the stockpile. As the Director of the Naval Nuclear Propulsion Program, I ensure the safe and reliable design, development, construction, testing, operation, maintenance, and ultimate disposal of naval nuclear propulsion plants. In ensuring safe and effective nuclear propulsion, we will continue to support the sea-based leg of the Triad to perform its deterrence mission.

Subcommittee. If the Administration does propose further reductions, how would the plans for the OHIO-Replacement change? For instance, would the Navy redesign the sub to reduce the number of SLBM tubes or push back the first ship procurement even further?

Admiral Richardson. Considering the recent decision to delay the program two years, the design and construction schedule is already aggressive and driven by the retirement of the OHIO-Class SSBNs, which have already been extended an additional 12 years beyond their original service life, from 30 to 42 years.

Subcommittee. In this unclassified setting, what would be the impact of having a smaller SSBN fleet on how the Navy carries out its deterrence mission?

Admiral Richardson. In order to meet STRATCOM's requirements for strategic deterrence, we need to have a certain number of ships at sea in

each ocean, on station and ready to launch if needed. In order to consistently meet that requirement, the Navy needs a certain number of additional ships to be in transit, in port restocking and conducting maintenance, and in shipyards undergoing more extended maintenance. The specifics are classified, and I would be happy to brief you on them in a closed setting.

Subcommittee. Do you have any concerns about maintaining a smaller fleet of ballistic missile submarines? What are the challenges?

Admiral Richardson. The Navy will plan to build and maintain a force large enough to meet its requirements.

MULTI-YEAR FUNDING REQUIREMENTS

Subcommittee. Admiral Richardson, this Committee expressed concern in recent years about the affordability of your five- and ten-year budget plans. With simultaneous major multi-year initiatives starting recently, the planning required a doubling in funding from 2008 through 2016 – a difficult pull in any budget environment. And it has only gotten worse now with the Budget Control Act and sequestration looming over us all.

Are you looking into other planning options and is there anything that can be done to improve the affordability of the NR program, without sacrificing our strategic defense?

Admiral Richardson. As we continue to provide ongoing fleet support for our submarines and aircraft carriers, and efficiently execute new project work, we recognize the importance of our continued affordability initiatives in all areas.

In 2010, following a strategic review, Naval Reactors initiated the following major efforts: reactor plant design for OHIO Replacement, refueling and overhaul of the Land-Based Prototype, and the planned recapitalization of the more than 50-year-old spent fuel handling facility. These three projects represent the majority of the increase to Naval Reactors' funding over the next several years. The needs for the OHIO Replacement, Land-based Prototype Refueling Overhaul and Spent Fuel Handling Recapitalization Project have been validated by NNSA, DOE, Navy, DOD, and OMB over the last several years.

The OHIO Replacement project directly supports the national security requirement to deliver the next generation ballistic missile submarine to sustain the Nation's sea-based strategic deterrence capability.

The reactor core development effort included in the Land Based Prototype Refueling Overhaul project supports the OHIO Replacement program's requirement for a life-of-ship core (40+ years of operation), allowing for a smaller SSBN force structure that the Navy estimates will save over \$40B. Recapitalization of the Land Based Prototype is needed as it is the only operating reactor capable of prototypical testing of naval core technology, as

well as training and qualification of about one-third of the Navy's nuclear operators beyond 2021.

The Spent Fuel Handling Recapitalization Project will recapitalize the over 50-year-old Expended Core Facility (ECF) used for naval spent nuclear fuel receipt, inspection, packaging, and secure temporary dry storage and will include a new capability to unload, prepare and package full-length aircraft carrier fuel from the new M290 shipping containers. Completion of the recapitalization of the spent nuclear fuel infrastructure on the identified timeline is needed to support the Navy's tight refueling and defueling schedule for nuclear-powered aircraft carriers. Without this facility, additional shipping/storage containers will be required to hold spent nuclear fuel until the new handling facility has the capability to receive it. As such, further delay to this project will incur costs of \$100M per year to purchase the required containers.

Recognizing that the ramp-up of these new projects would place a significant burden on DOE resources, efforts were undertaken to critically review Program baselines to free up resources and help mitigate the increased resource requirements. However, continuing activities to support our existing fleet and to address Program infrastructure precluded funding the increased resources for these projects out of current baseline funding. We did, however, continue to look for opportunities to reduce the cost of our work in all areas.

Several recent initiatives have been implemented, or are underway, to reduce costs:

- Combining the manufacturing development for Ohio Replacement core with the Land-based Prototype core will result in savings of approximately \$200M.
- Combining our two laboratories under a single management and operations contract has yielded annual savings of over \$16M.
- Consolidating our procurement prime contractor saves \$8M annually in overhead costs.
- Early core load for the FORD-Class aircraft carriers results in approximately 18 weeks of propulsion plant schedule reduction and saves approximately \$50M in ship construction costs.
- Reuse of existing equipment for the Land based prototype refueling will save us \$19M.

- Use of computer modeling in place of large scale testing of Ohio Replacement systems will save us over \$30M.
- 96% reuse of major existing equipment/equipment designs/equipment concepts for Spent Fuel Handling Recapitalization Project (SFHP) reduces the cost of the new facility by over \$85M.
- Planned design features of the Radiological Work and Storage Building reduce the duration of service support required for the Land-based Prototype Refueling Overhaul and save \$13M.
- Consolidation to a single Decommissioning & Decontamination contractor across all sites that reduced costs by \$1M annually.
- The life-of-ship core in OHIO Replacement ultimately enables a reduction in force structure, which the Navy estimates saves over \$40B.
- Development of the VIRGINIA Forward Fit core, which reduces the cost of VIRGINIA-Class submarines by \$17M per ship and also avoided a major recapitalization of unique factory infrastructure that was only used for VIRGINIA-Class cores.

UPDATE ON NAVY'S COST REDUCTION EFFORTS FOR THE OHIO REPLACEMENT

Subcommittee. Admiral, the Navy has been engaged in a concerted cost reduction effort to reduce the average procurement cost of the OHIO-Replacement from \$5.6 billion to \$4.9 billion each.

How much progress has been shown in reducing costs? Is it likely that the Navy will meet this target?

Admiral Richardson. Cost control is paramount throughout the OHIO Replacement program, from early design work and critical research and development through construction and follow-on operating costs.

The OHIO Replacement Program is in the Technology Development phase of the Department of Defense acquisition process. The Milestone A Acquisition Decision Memorandum for the OHIO Replacement program was signed in January 2011, and the Chief of Naval Operations approved the Navy Service Capability Development Document in August 2012. The Milestone B Defense Acquisition Board is scheduled for August 2016.

Examples of development efforts that the Navy is pursuing to reduce costs include:

- Conducting a detailed review of requirements and eliminating specifications in excess of those necessary to meet national strategic deterrent requirements.
- Planning to procure 12 OHIO Replacement SSBNs to replace 14 OHIOs.
- Life-of-ship reactor core (eliminates mid-life refueling).
- Reduced mid-life maintenance period (increases operational availability between depot maintenance periods).
- Implementing modular construction practices into the design.
- Re-hosting the TRIDENT II D5 Life Extended missile and Strategic Weapons System.
- Re-using VIRGINIA and OHIO-Class designs and components where feasible.

- Engaging with the shipbuilder to conduct detailed reviews of design and construction requirements, and develop a well-defined work scope to assess progress toward the cost goal.
- Developing the Integrated Tube and Hull (ITH) missile compartment construction technique.

Based on the most recent and detailed bottom-up estimate completed in August 2012, the Navy estimates the average follow-on ship procurement cost to be around \$5.3 billion in calendar year 2010 dollars (CY10\$). The Navy will continue to make progress towards the Milestone A average follow-ship procurement cost target of \$4.9 billion.

Subcommittee. What are the impacts to the core program if we cannot make cost saving adjustments?

Admiral Richardson. 12 OHIO Replacement submarines are necessary to meet STRATCOM requirements for nuclear deterrence. Affordability is a key driver for this program.

Subcommittee. The \$4.9 billion is a planning figure that did not take into account sequestration. Is this lower cost still affordable under sequestration, or would you be forced into reconsidering the basic requirements for the program?

Admiral Richardson. The Navy is not yet able to fully quantify impacts of sequestration on long-term cost reduction efforts. Nonetheless, the OHIO Replacement program is still working towards the achievement of a \$4.9B (CY10\$) average follow-ship construction cost target.

The OHIO Replacement is being designed to meet the requirements outlined in the Navy Capabilities Development Document signed in August 2012. These requirements ensure that the OHIO Replacement will be able to provide the Nation's survivable nuclear deterrent with sufficient survivability to address projected future threats into the 2080s.

We continue to focus our efforts on finding areas where we can reduce cost without sacrificing the required capabilities of the OHIO Replacement SSBN.

Subcommittee. Where is the Navy in its procurement process and how has the schedule has been impacted by recent policy developments and funding projections? Have the final design requirements for the OHIO-replacement submarine been decided?

Admiral Richardson. Currently, the OHIO Replacement program is in the third year of the Technology Development phase and is scheduled to start SCN funded design in FY 2017. The OHIO Replacement Program will utilize a design process similar to the Integrated Product and Process Development (IPPD) used by the VIRGINIA-Class Program.

The Navy has determined key requirements which will drive major design aspects, including the number and size of missile tubes, and basic hull and propulsion plant characteristics. The OHIO Replacement is being designed to meet the requirements outlined in the Navy Capabilities Development Document (CDD) signed in August 2012 by the CNO. The CDD will be approved by the Joint Requirements Oversight Council (JROC) in 2015 prior to Milestone B in 2016. The Navy expects to complete the Preliminary Design Review in 2016, with the Critical Design Review and Production Readiness Review in 2019.

LIFE-OF-THE-SHIP CORE

Subcommittee. Admiral, we know that even with this new core for the OHIO-Replacement, the SSBN will still need a mid-life non-refueling overhaul to operate over its full 40-year life.

If we cannot get out of a mid-life overhaul, why is a life-of-the-ship core so important for the OHIO-Replacement?

Admiral Richardson. The duration of the mid-life overhaul dictates the operational availability of the SSBN force and therefore SSBN force level. A 40+ year life-of-ship core eliminates the need for a mid-life refueling. Elimination of the refueling combined with reduction in total ship maintenance requirements due to design improvements shortens the mid-life overhaul and significantly reduces the cost of that overhaul. These efforts increase operational availability of the OHIO Replacement class, allowing 12 OR submarines to fulfill the mission of today's 14 OHIO-Class submarines. These efforts also reduce the total ownership cost of the program by eliminating the need to purchase and install 12 reactor cores.

Subcommittee. Are you experiencing any challenges in completing the new core design?

Admiral Richardson. The primary technical challenge to the life-of-the-ship core is successful implementation of a new core material that is required to achieve a life of 40+ years. The Land Based Prototype, which will be refueled beginning in 2018, will include this new material and is being used to develop production scale manufacturing processes suitable for the OHIO Replacement core. As expected, this development is proving valuable in identifying manufacturing processes that require improvement and correcting them. The issues identified to date are consistent with prior new core designs and would not preclude the use of this new cladding material to deliver a life-of-the-ship core.

Subcommittee. If sequestration takes effect, or if budget plans cannot be resolved, will you still design a next generation propulsion plant to achieve life-of-the-ship longevity, or would you be forced back into a more conventional option?

Admiral Richardson. The CNO has stated that the OHIO Replacement remains the Navy's highest shipbuilding priority and Navy leadership is committed to using all budget flexibility available to achieve an on-time, first deterrent patrol in 2031 and ensure an uninterrupted at-sea nuclear deterrent. The Navy is still working out the specific impacts on all of its programs.

Life of ship longevity is critical to the OHIO Replacement program, allowing the Navy to meet STRATCOM requirements with 12 vice 14 SSBNs, which the Navy estimates will save over \$40B. Therefore, even under sequestration, we would strive to achieve a propulsion plant that provides life of ship longevity. However, other NR priority DOE funded work will be negatively impacted, including the Land-based Prototype Refueling Overhaul. Sequestration would eliminate funding for manufacturing development that would then need to be funded by OHIO Replacement.

INFRASTRUCTURE PLANNING

Subcommittee. Admiral, the infrastructure portion of the Naval Reactors budget has been growing significantly over the past few years. In FY12, this Subcommittee asked for a ten-year infrastructure plan for the Naval Reactors sites. While we appreciate the work that was put into the report, we still don't have a good sense of the overall vision of the Naval Reactors sites and where they need to be over the next ten years.

What is your vision of the Naval Reactors sites and what major investments need to be made?

Admiral Richardson. The October 2012 Naval Reactors' Ten-Year Facilities Plan Report to Congress outlines that Program infrastructure projects are prioritized based on impacts to nuclear safety, compliance with regulatory requirements, health and safety of employees, mission sustainment, facility or infrastructure condition, and providing for adequate quality of workspace.

My current infrastructure priorities are to provide the facilities needed to:

- Support the nuclear power operator training demand on the Kesselring Site;
- Support refueling of the Land-based Prototype in 2018;
- Recapitalize the facilities for the receipt and management of naval spent fuel at the Naval Reactors Facility in Idaho.

These investments must be made on schedule to avoid adverse impact to the Navy's nuclear-powered fleet.

The October 2012 Naval Reactors' Ten-Year Facilities Plan Report to Congress included information on more than 70 additional projects that deserve attention over the next 5 years. As noted in the report, projects are initiated each year on a priority basis as funding becomes available and, if necessary, new starts are authorized. Infrastructure and investment projects are among the first items to be evaluated when there are unexpected changes to the Program's budget. When prompt resource adjustments are necessary, infrastructure or capital projects can be deferred quickly because they are generally subcontracted efforts. NR's specialized contractor workforce cannot be easily or quickly reduced. Consequently, emergent budget issues

cannot be effectively managed with staffing changes. Budget uncertainties make forecasting and executing infrastructure projects exceptionally difficult.

Subcommittee. Is now the time for site transformation, given the budget constraints we are seeing, or are you rethinking the timeline for making these investments?

Admiral Richardson. These infrastructure upgrades are not transformational, but rather the minimum validated Program requirements.

Subcommittee. Will you commit to providing us with more detailed information on your infrastructure needs in the future?

Admiral Richardson. The Program will continue to provide any information requested by Congress.

NAVAL REACTORS FACILITY, IDAHO SPENT FUEL INFRASTRUCTURE

Subcommittee. Admiral, you've already spent some funding on the design of a Spent Fuel Handling Facility in Idaho. However, this major nuclear facility disappeared from your budget request in FY13.

What progress has been made on this project and where are you at in your design process?

Admiral Richardson. As a result of the Budget Control Act, the Spent Fuel Handling Recapitalization Project was delayed in the FY13 Budget. Thus, the Major Construction Project funding was removed from the budget until a revised schedule could be developed.

Since that time, Naval Reactors developed a revised funding profile for the Spent Fuel Handling Recapitalization Project. Significant progress has been made in developing and defining requirements for nuclear safety, radiological controls, facility and facility system design, equipment design, and project management. This work is required to support the second major milestone, Critical Decision – 1 (Alternative Selection and Cost Range), which is scheduled to be completed in early FY 2014. A major element of Critical Decision – 1 will be the completion of the facility conceptual design.

Subcommittee. Is this strictly replacement facility or are there new capabilities that you need to support the NR program?

Admiral Richardson. The Spent Fuel Handling Recapitalization Project facility will recapitalize the more than 50-year old Expended Core Facility for naval spent nuclear fuel receipt, preparation, packaging, and secure temporary dry storage. Some new capabilities are required, and these will be included in the new facility. For instance, the Spent Fuel Handling Recapitalization Project facility will include capability to receive, unload, prepare, and package full-length aircraft carrier spent nuclear fuel from the new M290 shipping containers, which the current facility is not able to do. This capability is needed to support the Navy's tight refueling and defueling schedule for nuclear-powered aircraft carriers.

Subcommittee. When does this new facility need to be operational and are the plans changing under the Budget Control Act?

Admiral Richardson. The constraints imposed by the BCA will result in a delay in the planned delivery of Spent Fuel Handling Recapitalization Project, including the M290 shipping container unloading capability. This delay will require that the Navy purchase 4 additional M290s for each year of delay, at an annual cost of \$100M, to hold spent fuel from aircraft carrier refuelings and defuelings. We look forward to providing the Committee with a detailed brief on this project with the FY14 Budget submission.

LOW LEVEL WASTE NEEDS IN IDAHO

Subcommittee. In FY13, Naval Reactors and the DOE Office of Nuclear Energy requested to commence a joint project to build a new Low Level Waste Facility in Idaho. Because of the continuing resolution, work on this facility cannot start.

When does Naval Reactors need to have this facility done?

Admiral Richardson. Naval Reactors needs to have the new waste disposal facility available to accept waste within one year of the date that the current low level radioactive waste disposal facility at the Idaho National Laboratory (the Radioactive Waste Management Complex) stops accepting waste for disposal. Currently, the Radioactive Waste Management Complex is scheduled for closure in Calendar Year (CY) 2017.

Subcommittee. Is this timeline necessary because of the agreements with the state or will the NR program run out of storage space anytime soon?

Admiral Richardson. Agreements between Idaho and DOE-EM may impact the date of closure for the current facility. The Navy Agreements with the State of Idaho do not directly address the date a new waste disposal facility is needed to support Naval Reactors operations.

However, the Remote Handled Low Level Waste Disposal Project is indirectly linked to the Navy's ability to comply with the Idaho Settlement Agreement. The preparation and packaging of naval spent fuel for dry storage generates low level radioactive waste. The Expended Core Facility has only a limited capacity to store this material, and it competes with space to process and store spent fuel. Therefore, without a facility capable of receiving low level radioactive waste, the Program will run out of space at the Expended Core Facility and will be unable to conduct sustained processing of spent fuel. This limitation could adversely impact the Program's compliance with Idaho Settlement Agreement commitments to move spent fuel to dry storage by 2023.

Subcommittee. If we have a full year continuing resolution, what is the impact of not being able to start construction until next year?

Admiral Richardson. The impact of the full year continuing resolution on the Remote Handled Low Level Waste Disposal Project would be a one year delay to the availability of the new waste disposal facility to late CY18. Since this is one year after disposal operations at Radioactive Waste Management Complex are expected to cease, there will be no margin left to the Program need described above.

Subcommittee. How are you dividing up management of the project with the Office of Nuclear Energy?

Admiral Richardson. The DOE Office of Nuclear Energy is responsible for management and execution of this Major Construction Project. The role of Naval Reactors in the project is limited to providing technical data on wastes Naval Reactors would dispose in the new facility as well as partial funding for project execution.

CHANGES TO IDAHO SETTLEMENT AGREEMENT

Subcommittee. Admiral, there have been recent discussions about making modifications to the Idaho Settlement agreement, which requires DOE to remove all spent fuel from the state by 2035. Everyone has been operating under the assumption that Idaho does not want NR to halt operations, but the legal documents say otherwise.

Since we are considering making major new investments to keep Naval Reactors in Idaho for at least the next 40 years, have you engaged with the state to get some clarity on their expectations?

Admiral Richardson. One of my highest priorities upon taking command of the Program was to visit Idaho and meet with state and local officials, which I did in January 2013. During my discussions with Governor Otter, I made a personal commitment to ensure that our operations in Idaho receive the attention and resources needed to ensure we continue to meet our obligations with the highest standards.

Because of the importance of Program operations at the Naval Reactors Facility (NRF) in Idaho, including the major investment required to recapitalize the infrastructure, Naval Reactors began discussions with the State of Idaho in 2006 to clarify the requirements for managing naval spent fuel at NRF beyond 2035. Those discussions led to an amendment to the Idaho Settlement Agreement in 2008 which documents mutual expectations for operations at NRF beyond 2035. That amendment provides for extended operations at Naval Reactors Facility with a limit to the time and volume of naval spent nuclear fuel at the site.

Subcommittee. Shouldn't we have some insight and mutual agreement on expectations before moving forward with such a large investment?

Admiral Richardson. Per the amendment to the Idaho Settlement Agreement, described above, there is agreement between Naval Reactors and the State of Idaho on expectations for Program operations at NRF beyond 2035.

Subcommittee. Has NR looked into the costs of building its new facilities elsewhere? Are there other options if the state ultimately does not agree to extend the timelines?

Admiral Richardson. In view of the amended Idaho Settlement Agreement concerning operations at NRF beyond 2035, we have not done a detailed assessment of the costs to re-create the Program's Idaho facilities elsewhere. As well, the cost of relocating would be substantially higher than the current plan. The scope of the project would need to increase substantially for an alternate location to duplicate the capabilities provided by the Naval Reactors Facility in Idaho that do not need recapitalization (e.g., concrete storage overpack fabrication facility). In addition, Program operating costs would increase with the creation of a fifth DOE site requiring management and oversight by the Program.

SAFETY STANDARDS OF NEW CONSTRUCTION

Subcommittee. Admiral, Naval Reactors is looking at constructing an expensive spent fuel facility in Idaho during a time of incredibly tight budgets. In such an environment, there can be great pressure to cut corners and there is currently no formal requirement for Naval Reactors to subject itself to any external regulation or to build the facility to any particular written down federal or commercial standards. Instead, you rely primarily on self-regulation to determine what is adequate protection. We know the existing facility that was built is not standing the test of time and there are significant problems that you've been unable to fix. But our nuclear industry has come a long way in the 50 years since that facility was built.

How can you assure this Subcommittee that the next facility will be built to robust modern safety standards?

Admiral Richardson. The current Expended Core Facility met the applicable codes and standards when it was constructed over 50 years ago. Originally built as a research pool, it was expanded and modified to meet additional requirements, such as production work for processing spent nuclear fuel into dry storage. The gradual expansion led to a facility that is not efficient for the production dry storage work we are required to do over the next several decades. While the current facility continues to be maintained and operated in a safe and environmentally responsible manner, vulnerabilities in the current facility are related to these now-outdated design codes, materials used at the time the facility was constructed, and the extension of service beyond its original design life. Aging factors, primarily corrosion, have degraded the structures, systems, and components over the past 50 years.

The new facility will be built to robust, modern safety standards. Naval Reactors complies with the federal requirements through implementation of the Code of Federal Regulations, Department of Energy directives, conservative Naval Reactors nuclear safety design requirements, and incorporation of appropriate Nuclear Regulatory Commission guidelines and regulations. These federal regulations provide a robust framework for nuclear safety design, analysis, management, and best practices. Naval Reactors implements Department of Energy directives regarding integration of safety in design which identify modern standards for facility design and construction, as developed by industry experts. We will use this framework,

and our 60+ years of conservative engineering judgment, to ensure the facility meets our unique requirements for safety and efficiency.

So the combination of facility age and the inability to process M290 containers with full length aircraft carrier fuel, makes building a replacement facility the prudent, responsible course of action.

Subcommittee. Are you planning to build the facility to an equivalent standard that the Nuclear Regulatory Commission requires for commercial spent fuel?

Admiral Richardson. Yes. Naval Reactors meets all the federal requirements through implementation of the Code of Federal Regulations, Department of Energy directives, conservative Naval Reactors nuclear safety design requirements, and incorporation of appropriate Nuclear Regulatory Commission guidelines and regulations.

Subcommittee. Will you subject your design and construction to external scrutiny in order to assure the public that it is built to modern nuclear safety standards?

Admiral Richardson. For the major infrastructure recapitalization, Naval Reactors has contracted with an experienced Engineering, Procurement, and Construction Management contractor and has leveraged experience through our prime contractor, Bechtel Marine Propulsion Corporation and its corporate parent, Bechtel National Inc.

In planning and execution, Naval Reactors routinely seeks input from other experts. For this project, we have a formal agreement with the Naval Facilities Engineering Command (NAVFAC) to review the design and construction methods to help ensure the new spent fuel handling facility is built to modern standards. Additionally, Naval Reactors continues to actively engage the public, local officials, tribal leaders, State of Idaho officials, and other federal agencies on project developments.

Subcommittee. Please submit for the record a full explanation of the measures you will use to ensure the new facility will be built to modern safety standards.

Admiral Richardson. As stated above, Naval Reactors complies with the federal requirements through implementation of the Code of Federal Regulations, Department of Energy directives, conservative Naval Reactors nuclear safety design requirements, and incorporation of appropriate Nuclear Regulatory Commission guidelines and regulations. This framework establishes a robust set of design and construction criteria that require the use of commercial industry standards, including standards set by the American Society of Mechanical Engineers, the American Concrete Institute, American Institute of Steel Construction, the American Society of Civil Engineers, and the American Nuclear Society. Additionally, the Spent Fuel Handling Recapitalization Project is being managed in accordance with DOE Order 413.3 (Program and Project Management for the Acquisition of Capital Assets) as implemented by Naval Reactors. We are capitalizing on established Naval Reactors requirements and lessons learned from management of our Navy projects, including the use of our formal processes for nuclear safety, refueling equipment, and refueling system design. Approved Naval Reactors technical and functional requirements will ensure that the new facility design and construction:

- provides robust protection through defense-in-depth, minimizing hazardous material and energy sources, preferring passive over active controls, and using engineered rather than administrative controls;
- identifies potential nuclear, radiological, occupational, fire, security, and natural phenomena hazards;
- develops a conservative, graded approach where we classify the relative importance of structures, systems, and components based on potential consequences to the public, workers, and the environment of an unmitigated release event.
- analyzes postulated accident scenarios in periodic safety reports at major project Critical Decision milestones to validate the design approach;
- incorporates additional defense-in-depth through strength, redundancy, qualification, analysis, and quality assurance to withstand more severe demands on the structures, in accordance with industry codes and standards.

Naval Reactors routinely manages significant projects, such as the design and construction of the VIRGINIA-Class submarine and the FORD-Class aircraft carrier reactor plants. Additionally, Naval Reactors has significant

experience in the design, fabrication, procurement, operation, and maintenance of spent fuel handling equipment, having refueled or defueled over 400 reactor cores and transported over 800 loaded spent fuel shipping containers.

DEFENSE NUCLEAR NONPROLIFERATION

SECURING AND REMOVING NUCLEAR MATERIALS

UPDATE ON FOUR-YEAR EFFORT TO SECURE VULNERABLE MATERIALS

Subcommittee. The Nuclear Posture Review listed the President's Prague Initiative to secure fissile material globally first among the key elements in the Administration's nonproliferation agenda.

What have we accomplished so far and how much more do we have to go?

Ms. Miller. You are correct that enhancing the security of fissile material continues to be a top national security priority. With respect to the President's four-year initiative, we have accomplished a great deal so far, but important work remains. One of DNN's goals under the four year effort is to remove or dispose of a cumulative total of 4,353 kilograms of vulnerable nuclear material (highly enriched uranium and plutonium) by December 31, 2013. As of February 28, 2013, DNN has removed and/or confirmed the disposition of 3,520 kilograms of highly enriched uranium (HEU) and plutonium. DNN must remove or confirm the disposition of another 833 kilograms of HEU and/or plutonium by the end of 2013 to meet this goal.

In addition, DNN is increasing the security of buildings and facilities in Russia that contain potentially vulnerable weapons-usable nuclear material. To date, we have completed security upgrades at a cumulative 218 of the 229 buildings. The remaining 11 buildings are located at a single large nuclear site in Russia and are scheduled to be completed by the end of 2013.

Subcommittee. Will you succeed in completing the scope of work planned as part of the four-year goal?

Ms. Miller. We are very close, though some significant challenges remain. DNN is on track to remove or confirm the disposition of at least 4,353 kilograms of HEU and plutonium by December 31, 2013, but we have encountered some delays in the completion of security upgrades at the remaining 11 buildings in Russia. Security at these buildings has been improved already through the completion of an initial set of upgrades, and

the broader set of comprehensive security upgrades is ongoing. We are working closely with our counterparts to find ways to accelerate efforts and address any issues promptly.

Subcommittee. What are the biggest challenges you see in accomplishing the remaining work?

Ms. Miller. In a handful of instances, political challenges have hampered our cooperation to remove material. In these instances, DNN has actively worked with the countries and sites involved to improve security of the material until agreement can be reached to remove the material.

The work to support security upgrades at Russian nuclear sites is inherently challenging, because it occurs on foreign sovereign territory and relies on cooperation from a range of ministries and agencies in that country. Therefore, there are many factors outside of our control, and we cannot always guarantee that our partners will complete actions in the timeframe we desire. For the security upgrades at the remaining 11 buildings specifically, the biggest challenge has been the inability of the Russian side to meet deadlines, from completion of the designs to delivery of equipment. . Although site-level counterparts remain committed to completing this work, we have also learned in recent weeks that approval of some key contracts has been delayed, while the U.S. and Russia work towards a new legal framework for CTR-related work.

SEQUESTRATION AND THE FOUR-YEAR GOAL

Subcommittee. Ms. Harrington, securing nuclear materials at vulnerable sites around the globe is an incredibly important national security mission for the NNSA and we'd like to understand how your efforts will be impacted by sequestration.

Is the goal to secure vulnerable materials overseas in four years still achievable under the Budget Control Act and sequestration?

Ms. Harrington. Almost four years ago in Prague, President Obama shared his vision for a world without nuclear weapons, free from the threat of nuclear terrorism, and united in our approach toward shared nuclear security goals. Under sequestration, the level for the DNN appropriation would be nearly \$250M below the FY 2013 President's Budget, and roughly \$85M below the FY 2012 enacted level.

Most of the contracts to perform the work under the four year effort have been placed, so the sequestration will not directly impact the ability to complete the work. Sequestration will hamper federal oversight over these activities through furloughs and reductions in travel funding.

Subcommittee. Can you realign or reprogram funding within the appropriation to ensure we are providing enough funding for the programs which have the greatest benefit for national security, or will you be held to across the board cuts under sequestration?

Ms. Harrington. We are held to across the board cuts, but have the potential to reprogram funds once a budget is passed. Reprogramming, however, involves four committees and can be a lengthy process.

STATUS OF MATERIAL REMOVAL AND PROTECTION IN RUSSIA

Subcommittee. It is important to understand where we are leaving things if we indeed are forced in halting all Cooperative Threat Reduction work in Russia.

Has NNSA already successfully secured the most high risk materials in Russia, or are there any notable risks remaining?

Ms. Miller. The remaining security upgrades work at the 11 buildings notwithstanding, the overwhelming majority of security upgrades at Russian locations included in the cooperation have been completed. However, we continue to seek opportunities to partner with our Russian counterparts on further improvements to security systems and practices in that country. Nuclear security is not a static concept. It requires continual analysis and testing of system performance against a range of evolving threats. This has been a significant theme in our cooperation with Russia, and we have been able to work with them over the years to continue to improve security at these sites by addressing additional gaps that have been identified. For example, in recent years we have redoubled our efforts to ensure the security upgrades we support are effective in mitigating insider threats and have made important improvements in that area. We must also support efforts to improve personnel reliability programs and to enhance nuclear security culture.

Significant risks remain, however, as there are more than 70 radioisotope thermoelectric generators, and hundreds of civilian buildings with high-activity radiological sources, and more than half the world's HEU-fueled research reactors in Russia that require recovery, protection and/or conversion.

We need to prioritize material consolidation efforts, which can reduce security requirements significantly and the long-term cost of meeting those requirements. Material consolidation efforts are underway at two locations in Russia and there may be additional opportunities to engage in this kind of collaboration in the future.

Russia has continued to fund an increasing share of costs for new upgrades and sustainability measures related to nuclear security, but NNSA believes that the United States needs to remain actively engaged in Russia. An

ongoing nuclear security partnership with Russia will continue to foster improvements in nuclear security best practices in Russia and will facilitate faster and more effective solutions to meeting the security challenges that both countries consider critically important.

Subcommittee. If the agreement is not extended, can you discuss the remaining proliferation risks?

Ms. Miller. Russia has the largest stockpiles of weapons usable nuclear material in the world, a sprawling nuclear complex, and a documented terrorist threat. There are important security challenges inherent in this situation that are, of course, of most immediate concern for Russia but are also very significant for U.S. national security. Russia has made strides in recent years to address these challenges through reorganizations and funding improvements, but significant risks persist. We have built an effective partnership over the history of our collaboration and hope to continue this partnership to address our common interest in nuclear security.

Subcommittee. If Russia does not agree to extend the Cooperative Threat Reduction program or renegotiate a replacement agreement, what does that mean to the projects that are in progress or that we've committed funding to but have not started?

Ms. Miller. Russia has indicated to us its interest in developing a new legal framework to allow cooperation to continue, including the continuation and conclusion of activities already being carried out in Russia. Efforts are currently underway to work with Russia to agree on such a replacement framework before the CTR Agreement expires in June, 2013. During our discussions with Russia in February 2013, Russia stated that projects that are in progress or those that we have committed funding to but have not started would be allowed to continue. Thus, we are optimistic that we will be able to continue our important threat reduction activities with Russia.

Subcommittee. For the record, please provide the committee with an accounting of remaining MPC&A and GTRI programmatic work in Russia that will not be completed before the current program expiration date, including estimated costs of completing those projects and amount of funding already committed in support of those projects.

Ms. Miller. The Administration is negotiating a new legal framework with the Russian Federation that would allow for ongoing or planned MPC&A and GTRI programmatic work to proceed after the expiration of the current CTR agreement, provided such programmatic work had been approved by the Russian Federation. DOE/NNSA would be happy to provide a classified briefing for the subcommittee on the current status of the DOE/NNSA programs affected by the transition to a new legal framework.

SECURING DOMESTIC RADIOLOGICAL MATERIALS

Subcommittee. Last September, the GAO reported on the status of security measures for high-risk radiological sources at U.S. medical facilities and found some pretty shocking security failures at some facilities. They found that NRC security measures are not prescriptive, that state inspectors are not adequately trained to provide effective security oversight, and that hospital and medical facility personnel do not have the training to implement security controls. They also reported the NNSA's efforts did not share any of its security assessments with the NRC, and there seems to be considerable confusion over what level of security is voluntary and what is elective.

From your experience in going into these facilities, do you agree with GAO that the NRC's security requirements and controls are too broadly written and should be revised?

Ms. Miller. The support that NNSA provides goes above and beyond what is required by the NRC because local law enforcement, a critical element to domestic security, is and will always be outside of NRC regulatory control. Thus, NNSA programs bridge the gap that is outside of regulatory space by training and equipping local law enforcement agencies to reduce the threat. A timely, well-equipped, well trained response to a security incident is critical to interrupt and neutralize an adversary before they gain access to a radioactive source. NNSA implements security systems with remote monitoring capabilities to alert the local law enforcement and prevent a single point failure. NNSA has also developed an Alarm Response Training course that brings together site radiation protection staff, on-site security and local law enforcement to train in realistic scenarios using actual radioactive sources.

Additionally, the NRC's security requirements are performance-based and require the licensee to develop a security program with measures specifically tailored to its facility. NNSA works in partnership with licensees on a cost-share basis to provide specific security enhancement recommendations based on well established security principles such as graded protection measures based on material attractiveness levels and specific physical security measures designed to improve detection, assessment, delay, and response capabilities. NNSA project teams include physical security experts with years of experience in physical protection to include experience at Department of Energy/NNSA nuclear weapons complex facilities. This level

of expertise is generally not available to licensees that are establishing their facility security programs following the NRC's rules for the protection of radioactive sources. Additionally, NNSA has conducted extensive security analysis to demonstrate the improved security resulting from the specific security enhancements provided by NNSA such as physical protection upgrades, In Device Delay and remote monitoring systems.

Subcommittee. Would greater regulation remove the need for NNSA to carry out its domestic radiological protection programs? How should this relationship work ideally?

Ms. Miller. Increased NRC regulatory security requirements would decrease but not eliminate the need for NNSA's domestic radiological protection programs because some critical security elements (such as local law enforcement response) are outside of NRC regulatory space. In addition, modifying NRC's regulations can take years, therefore, NNSA's domestic radiological protection programs would continue fulfill a critical need in the interim.

DOMESTIC RADIOLOGICAL PROTECTION MODEL

Subcommittee. In its September report, the GAO also reported on NNSA's slow pace of its plans to secure domestic materials and that the longer it takes to implement the security upgrades, the greater the risk that potentially dangerous radiological sources remain unsecured and could be used as terrorist weapons. And some facilities have declined NNSA security upgrades and the sustainability of those upgrades provided by the NNSA is uncertain.

Why have some facilities declined the NNSA-proposed upgrades?

Ms. Miller. To date GTRI has assessed 782 domestic buildings with radiological materials; 766 -- approximately 98%-- have agreed to participate with GTRI to upgrade the physical protection of these materials.

The main reason that some sites have declined to participate in the NNSA-proposed upgrades is an underestimation of the threat posed by these materials. As accurately noted in the GAO's Statement of Facts, most sites do not have the security expertise to know what upgrades will be the most effective in an integrated physical security system. Only a few sites have turned down NNSA assistance. Of those, one was only interested in the In-Device Delay (IDD) portion of the NNSA scope of work. The IDD kits are not completely impenetrable and only provide enhanced delay. While NNSA does have flexibility in working with sites to build upon their existing security systems and meeting our internal protection criteria, we cannot declare a building "secured" by only adding increased delay -- like the IDD -- without having effective and integrated detection and response systems in place. Likewise, for those sites that did not want off-site remote monitoring, we could not state the security system is "effective or adequate" as a potential insider could still have hours or days to defeat the IDD if not detected or responded to. The other prevailing reason a few sites declined NNSA upgrades was the hospital administration decided (despite the Radiation Safety Officer and Security's willingness to work with NNSA) that since they already met NRC Increased Controls, they believed the regulations to be sufficient even though local law enforcement efforts are outside of NRC regulations.

Subcommittee. Are there ways to change the program model to accelerate security improvements or to address concerns by some facilities that the upgrades are too expensive to maintain?

Ms. Miller. NNSA's domestic voluntary security program has encountered limited concerns from sites that facility upgrades are cost-prohibitive. We have a cost share policy that allows us to take a flexible approach with sites on how to fund the range of activities we offer (which includes upgrades, training, and better understanding on the definitions, types of radioactive sources, and thresholds for RDDs of national significance). A large percentage of licensees are willing to make a modest investment in security to protect themselves from the potentials risks of an RDD that could (1) impact national security, national economy, national public health or safety, or any combination thereof, or (2) require a robust, coordinated Federal response to save lives, minimize damage, and/or provide the basis for long-term community and economic recovery that would cost billions of dollars.

NNSA uses a graded security approach to install voluntary security enhancements to improve detection, delay and response on high-priority nuclear and radioactive material sites. NNSA's methodology builds on the classic security risk equation used for years by the Department of Energy and the National Nuclear Security Administration, and as taught by the IAEA in its physical protection courses for Member States. NNSA best practices are tailored to the uniqueness of each facility and their on-site/off-site response force via assessments and trainings. Most facilities see our program's added value and conclude that their sustainability investment is a sound investment/insurance for the potential liability of materials being misused at their site.

Additionally, each site that NNSA works with is required to sign a sustainability statement explaining that gives them a five year transition period during which they will take responsibility for sustaining the upgrades. This transition period provides them with sufficient time to budget internal funding for maintenance of upgrades and training.

Subcommittee. Are there ways to target the lack of training issue in particular? Are you looking into ways the NNSA might change its training programs for state inspectors and hospital employees to reach a larger audience?

Ms. Miller. Training of State inspectors is the responsibility of the NRC or Agreement State, thus NNSA's role in this is limited.

However, training of hospital employees is within NNSA's scope and NNSA is continually improving the training it provides. NNSA has invited several NRC and Agreement State inspectors to attend our Alarm Response Training course. Moreover, NNSA has agreed to work with the NRC to develop the NRC's Security Best Practices Guide, which should include a section on training. The NNSA/GTRI Sustainable Security program's goal is long term threat reduction by assisting sites to become fully capable of sustaining a security program independent of NNSA. While equipment is provided as part of the security enhancements work, an equally important element of the program is to improve the security management skills and culture of facilities so they sustain not only the equipment, but the effectiveness of their overall security program for the protection of radioactive sources. NNSA assists sites in implementing sustainability in 16 topical areas that are considered necessary to sustain an effective security program. NNSA has training capabilities in these areas as well as model plans and procedures for topics such as security plans and procedures, maintenance programs, budget planning, and performance testing, as well as law enforcement response related training such as the Alarm Response Training course conducted at the Y-12 National Security Complex in Oak Ridge, TN. NNSA also partners with the FBI to conduct site-specific tabletop exercises on prevention and response to a security incident involving radioactive sources, such as their attempted acquisition by a terrorist. The exercises can be used to identify specific training needs to improve the sustainability and planning of a site's security program.

ONGOING COSTS TO SECURE VULNERABLE NUCLEAR MATERIALS

Subcommittee. The Four-Year Goal to secure vulnerable nuclear materials has been a big effort, encompassing hundreds of individual projects around the world. But there is still a lot of material out there and it is not clear how much remains after the four-year work scope is accomplished.

After the four-year goal work is complete, what remains and what will be the future costs of those activities?

Ms. Miller. Securing nuclear materials requires action by all countries who hold nuclear material and others who can provide assistance; the US is not alone in this international effort. The four year effort allowed us to accelerate some of our most important work, but it is accurately described as “a sprint in the middle of a marathon.” There is much left to complete in the areas of the elimination, consolidation and securing of nuclear and radiological materials worldwide. Our overarching goal remains the same - NNSA’s focus is to prevent terrorists from getting nuclear or radiological material that could be used against the United States or our allies. As such, we will continue efforts both domestically and internationally to eliminate HEU and dispose of plutonium in the civilian sector, convert HEU-fueled research reactors to LEU, consolidate nuclear material in fewer locations, improve and sustain the security of nuclear materials at those locations, support the adoption of security best practices, prioritize efforts to secure or remove high-priority radiological sources, strengthen border controls through detection capabilities and export control training, and work in collaboration with international partners to build global capability in these areas.

The future cost of these activities is substantial; however, the cost of not acting will be much higher if a nuclear or radiological device were detonated, and we must continue to lead by example as we have done very successfully over the past several years.

Although DNN will have substantially improved nuclear security across the globe as part of the four year effort, it is imperative to acknowledge the fact that there is much work left to be done. Nuclear and radiological terrorism continues to be a grave threat and materials of concern continue to be

produced and continue to be at risk. Defeating this threat requires strong national measures and international cooperation.

Subcommittee. What requirements will drive future costs?

Ms. Miller. DNN will continue to work with its foreign partners to protect, eliminate and dispose of excess nuclear and radiological material. The same requirements that have driven past costs will continue to be valid: the development of technology for safe and secure shipment of materials as well as fuel development, the cost of regulatory approval and government agreements and commitments to perform the work, and lastly the costs associated with implementing the conversion, removal or installing the physical security system. In addition, DNN continues to investigate ways in which to increase cost sharing with its foreign partners to help reduce costs.

Subcommittee. Are you formulating a formal follow-up plan to encompass the remaining vulnerabilities?

Ms. Miller. Yes, DNN is continually updating its plans to reduce and protect vulnerable nuclear and radiological material located at sites worldwide both within the four year effort and over next several years.

REACTOR CONVERSIONS

Subcommittee. The FY13 budget request for the Global Threat Reduction Program showed a large ramp up in funding expected over the next five years to convert reactors located all over the globe from highly enriched to low enriched fuel. Many countries have been slow to agree to conversions because they are concerned about losing the functionality of these reactors. This is a technical issue that NNSA has made good progress on. However, solving these problems involves a lot of work by our nuclear fuel experts and it takes time to gain agreement from the host nation.

How much of a ramp up in funding can you realistically execute given what you've learned so far about the pace of completing a reactor conversion?

Ms. Miller. GTRI can realistically execute the budget that is laid out in the FY13 budget request. With the proposed budget over the next five years, GTRI will be able to continue to invest in the major initiatives in the conversion program, including Mo-99 conversion and complex high-performance research reactor conversions.

Subcommittee. Are you refining your budget plans to better reflect your ability to execute those funds without retaining large carryover balances?

Ms. Miller. GTRI puts considerable effort into reducing its unencumbered carryover number each year, and in FY12 had an unencumbered carryover balance of less than 5%. That represents about 15 days of normal operation and therefore reducing much lower begins to present an operational challenge to the program under a Continuing Resolution of any duration. During the five-year Future Years Nuclear Security Program process, GTRI uses carryover numbers by program as one factor in deciding budget requests for follow-on years. In addition, GTRI uses milestone based contracts which allows the program to pay for work completed in a faster manner.

Subcommittee. How many formal agreements do we actually have in place regarding these future conversions you've identified in your budget plans?

Ms. Miller. GTRI has formal agreements with approximately 30 facilities, and is looking to negotiate additional formal agreements for conversion to LEU in the next few years.

Subcommittee. At what point in time have you planned to commit funds for the cost of the conversion? Do you only fund the study portion or do you commit funds in advance for the entire project?

Ms. Miller. Although each conversion project is unique, it can take between 3-7 years from start to finish once fuels are available and funding is required throughout this project lifecycle. For conversion projects, GTRI typically funds each part of the project under separate contracts to allow us to properly manage each stage of the project. In a typical project, money is committed at three main points: 1) for a feasibility study, 2) for operational and safety analysis studies, and 3) fuel and target procurement and fabrication. What we fund also is very dependent on our partner. For high income countries, our investment is largely limited to participating in the study and the conversion costs are up to the partner country; in the case of low income countries, we still encourage at least in-kind contributions, but expect to bear a larger part of the overall project cost.

LEAKING SPENT FUEL IN L-BASIN

Subcommittee. The Defense Nuclear Facilities Safety Board wrote a letter to the Secretary of Energy in January reporting that a number of cans of reactive spent fuel being stored in L-Basin at Savannah River are leaking, and that the storage conditions for the bulk of the metal spent fuel is not robust. The Office of Environmental Management manages the facility and some of this fuel is legacy defense fuel, but the majority of the fuel is now from foreign and domestic research reactors transported there by NNSA as part of its material removal and reactor conversion programs.

How much does the NNSA's nonproliferation program rely on L-Basin storage to support its nuclear material removal goals?

Ms. Miller. The NNSA Global Threat Reduction Initiative (NNSA-GTRI) U.S.-origin Nuclear Remove program relies almost exclusively on the ability to receive and store research reactor fuel in the L-Basin storage pool at the Savannah River Site (SRS). A small amount (~5%) of program eligible inventory consists of TRIGA fuel, which is stored at Idaho National Laboratory (INL).

Subcommittee. Have you analyzed how a closure of L-Basin might impact your plans to remove materials? What other alternatives are available?

Ms. Miller. A closure of L-Basin at SRS would require the termination of the receipt of all aluminum clad fuel from foreign and domestic research reactors. This could result in reactor shutdowns when their licensed storage capacities are reached.

Decisions regarding alternate solutions for interim storage and ultimate disposition lies with DOE's Office of Environmental Management (DOE-EM).

However, GTRI's U.S.-origin Nuclear Remove program evaluated other potential disposition options necessary to perform the mission objectives during the preparation of an environmental impact statement, Final Environmental Impact Statement on a Proposed Nuclear Weapons Nonproliferation Policy Concerning Foreign Research reactor Spent Nuclear

Fuel, DOE/EIS-0218F, February 1996. These and other options are being explored with DOE-EM.

Subcommittee. Is NNSA responsible for identifying the ultimate disposition path for this fuel? What are you doing to work through a solution?

Ms. Miller. No. DOE-EM is responsible for interim and long term management of all material received under the U.S.-origin Nuclear Remove program, domestic research reactor receipts and DOE owned material residing in L-Basin. However, NNSA-GTRI coordinates closely with DOE-EM on these efforts to help identify solutions to nuclear material management issues.

Subcommittee. Are there other challenges in DOE spent fuel management that impacts your program and what are you doing to address those issues?

Ms. Miller. There are approximately 12,500 kilograms of U.S.-origin HEU in foreign countries with no disposition pathway in the U.S. NNSA-GTRI is working with DOE-EM on a case-by-case basis to determine if a viable U.S. option exists.

INTERNATIONAL ISSUES

NUCLEAR SAFEGUARDS AND IRAN

Subcommittee. Madam Administrator, given the Department of Energy's involvement in both the civilian and military sides of nuclear power, it is in a unique position to address proliferation concerns linked to the international expansion of nuclear energy, the excuse that Iran has used for its development of uranium enrichment.

Nuclear safeguards are supposed to identify cheaters and prompt more intense international pressure or action. But so far, the IAEA has been unable to prompt much action even though it has reported on the military dimensions of Iran's nuclear program.

Do you think there is progress in making safeguards more persuasive in identifying nuclear cheaters?

Ms. Miller. The main purpose of international safeguards is to ensure timely detection of undeclared activities and diversion of materials. Safeguards are a means of gathering information to confirm states' declarations about their nuclear programs. The IAEA, with support from the United States Government and the international community, has been improving the way it collects and analyses information to make the international safeguards system more effective and efficient.

Recent organizational reforms within the IAEA's Department of Safeguards has put the IAEA in a much better position today to detect and deter cheating than ever before. The IAEA's so-called "State Level Concept" for safeguards implementation, is intended to further improve the IAEA's ability to detect and deter undeclared activities and use limited resources more efficiently without sacrificing effectiveness. Under this approach, the IAEA is looking at State's activities in a more holistic way, and making use of all available, safeguards-relevant information.

The safeguards system has been strengthened further by the steady increase in the number of States that have concluded Additional Protocols (APs) to their traditional safeguards agreements. These states- 119 of them to date- have granted the IAEA additional authorities and information, allowing the IAEA to provide credible assurances of the absence of

undeclared nuclear material and activities in those States. The U.S. Government is working with international partners to universalize adherence to the AP, which is central to making safeguards as effective as possible.

These efforts are critical to ensuring that the IAEA can make the most of its resources and stay ahead of would-be proliferators.

Subcommittee. Are there ways to make safeguards stronger?

Ms. Miller. The United States can help strengthen international safeguards by strengthening the organization responsible for their implementation. We are working with IAEA to: 1) develop state-of-the art safeguards technologies to achieve greater effectiveness and efficiency, including the detection of undeclared activities; 2) train and educate the next generation of safeguards professionals; 3) work with other countries to help them fulfill their respective safeguards obligations; 4) develop advanced approaches to improve inspections; and 5) promote efforts to universalize the AP.

Subcommittee. What work does the NNSA do to advance nuclear safeguards and are you ramping up these efforts?

Ms. Miller. Through the Next Generation Safeguards Initiative (NGSI), NNSA works with the IAEA, the interagency, DOE's national laboratories, and key international partners to keep pace with emerging challenges and provide a foundation upon which to strengthen international safeguards.

Through NGSI, NNSA is developing the safeguards policies, concepts, technologies, expertise and international safeguards infrastructure necessary to strengthen and sustain the international safeguards system as it evolves to meet new challenges.

DETECTING NUCLEAR EXPLOSIONS AND MATERIALS

DETECTION OF NUCLEAR EXPLOSIONS

Subcommittee. The United States and others are hurrying to collect as much scientific information as possible from North Korea's latest nuclear test. This data is essential in determining how much progress they have made in developing a deliverable nuclear weapon.

Do we have the capabilities to quickly determine what type of device was detonated in North Korea, its explosive yield, and especially what fissile material fueled the explosion? Those seem to be the immediate questions that people are so eager to know.

Ms. Miller. NNSA funds the development of technical approaches that are utilized by other parts of the US Government to collect and analyze information about nuclear tests. In particular, NNSA developed improvements in location determination, yield estimation, and radionuclide analysis that were employed by the Department of Defense to reach United States Government conclusions about this test. Information about the nature of the fissile material would likely only be possible if certain radionuclide byproducts of the test escaped to the environment and could be collected and analyzed.

Subcommittee. This Committee appropriated \$132 million last year to the NNSA for nuclear detonation detection. How do the technologies developed and produced by the NNSA's nonproliferation program assist us in answering these types of questions?

Ms. Miller. The NNSA Nuclear Detonation Detection R&D program supports the national capability to monitor worldwide nuclear detonation by: building the operational satellite payloads that provided continuous global coverage of surface, atmospheric, and outer space detonations; developing and validating improved seismic and infrasound analysis methods such as those used by the U.S. Government to more accurately determine the yield and location of the DPRK test on 12 February 2013; developing improved and faster radionuclide detection and analysis capabilities; and improving technologies and analytical techniques to increase the accuracy and timeliness of post-detonation nuclear forensics.

Using approximately \$104M of the \$132M appropriated in FY12, the program completed and delivered the last two of twelve payloads for the current GPS block IIF satellites and the first payload for the next block of GPS III satellites. The seismic science portion of the NNSA Nuclear Detonation Detection R&D program was funded at approximately \$15M of the \$132M appropriated in FY12. The radionuclide science portion of the NNSA Nuclear Detonation Detection R&D program was funded at approximately \$5M of the \$132M appropriated in FY12. The post-detonation nuclear forensics portion of the program was funded at approximately \$8M.

Subcommittee. Are there any parallel related efforts in NNSA?

Ms. Miller. The NNSA Nuclear Detonation Detection Program leverages efforts across the NNSA, DOE, and elsewhere in the U.S. Government. DNN R&D efforts at the Nevada National Security Site leverage investments from other NNSA offices. The efforts are coordinated and complementary. DNN R&D also collaborates with DOE's Fossil Energy, Geothermal Energy, and Carbon Sequestration programs to take advantage of geophysical sciences.

Subcommittee. Do we need to make more investments in the alternate types of detection technologies? If so, where should we concentrate the next phase of research and development to answer the most pertinent questions?

Ms. Miller. The DNN R&D program has a balanced approach for investing in all major areas of research in nuclear explosion monitoring, space-based sensors, seismic, radionuclide, infrasound, hydro-acoustic, and other means. DNN R&D also makes strategic investments in technologies according to collection means, such as by international/cooperative measures, by unilateral permissive measures, and by other unilateral non-permissive measures. The program periodically re-evaluates the many previously explored monitoring techniques from prior decades that were abandoned because supporting technology was not ready or their incremental contribution to answering pertinent questions was marginal. The program also actively seeks out new potential means of addressing pertinent monitoring questions. However, techniques must demonstrate potential to address currently unanswerable pertinent questions with reasonable confidence, or provide high confidence answers at lower cost to be explored beyond the conceptual stage.

GLOBAL SEISMIC NETWORKS

Subcommittee. The blast detected by the international seismic monitoring stations could have just as easily have been a conventional explosion rigged to appear nuclear even though we know that is not the case. But having technical information which confirms that an explosion is nuclear can be vital to gathering support for an international response. There are a lot of ideas to improve the seismic detection networks and maintaining this type of worldwide infrastructure requires substantial funding.

How valuable is the international seismic network in confirming that a nation has detonated a nuclear weapon?

Ms. Miller. Seismic signals alone are not sufficient to tell that a seismic event was nuclear in origin. The nuclear nature of an event can only be determined by radionuclide evidence. However, seismic data can usually tell the difference between conventional explosions and earthquakes and in some sense the more data brought to the analysis the better. The U.S. relies upon data it has control over to make crucial detections. Data from other seismic networks cannot always be counted on during an actual event of interest. The stations may have unreliable transmission or subtle biases during the time window of greatest interest. However, data from international and academic seismic and infrasound networks helps in several ways. They provide additional signals from different directions surrounding a suspect event thus providing greater insight into the nature of the source. Prior to an event, this data often aids in developing and validating seismic signal propagation models that are used during event analysis to better compute location, yield, and explosion properties.

Subcommittee. What is the difference in the utility of information available from the networks maintained by the U.S. government, the Comprehensive Test Ban Treaty Organization or other international bodies, and the scientific community?

Ms. Miller. The seismic/infrasound sites maintained for nuclear explosion monitoring by the U.S. Government and the Preparatory Commission for the Comprehensive Nuclear-Test-Ban Treaty Organization (CTBTO) use full arrays of sensors, designed for continuous operation, broadband coverage, optimally-oriented and distributed to best detect signals from nuclear explosions from around the globe. These site arrays have high

levels of quality control measures in place and are well calibrated, including low background noise levels. Generally seismic and infrasound sites maintained by the scientific community are single instruments, tuned for seismic hazard analysis and earthquake research, dependent on local operators for quality control, and data are not always available in real time. Despite the potential difficulties presented by the use of independent data sources maintained by the scientific community, selected scientific networks and individual stations can sometimes complement U.S. and CTBTO efforts because of their inclusion of short-period stations optimized for detecting very low-magnitude events on a regional scale, their significant numbers, and their wide geographical deployment.

Subcommittee. What other technologies need to be developed in concert with seismic detectors to improve monitoring, or are there ways to improve the detectors themselves?

Ms. Miller. Data handling and analysis technologies are being researched and developed in order to process the vast amounts of data that are retrieved from networks. Dealing with earthquake aftershock sequences and industrial (e.g., mining) and city background noise levels is a significant effort in explosion monitoring. Detailed seismic earth models and infrasound atmospheric models are crucial for accurately detecting, locating, and determining the yield of an event. Overall, the seismic, infrasound, and radionuclide sensors are very sensitive, but must be deployed and operated effectively in order to ensure reliable monitoring and newer technologies may make re-capitalization cost effective by lowering maintenance cost while increasing detection sensitivity. The effective sensitivity of radionuclide sensors can also be increased by reducing background signals, especially those produced by the signatures of medical and industrial isotope production. NNSA is working with producers to reduce these emissions of concern.

SECOND LINE OF DEFENSE PROGRAM REVIEW

Subcommittee. This Committee directed the NNSA to perform an overall assessment of its program model for the Second Line of Defense program in order to ensure that your previous plan to spend \$1.8 billion over five years was the most effective way to combat nuclear smuggling. Your FY13 budget request for SLD went down significantly while you performed this assessment.

We understand that you've completed your review. Can you please tell our members the results of this inward assessment?

Ms. Miller. SLD is a key component of the global nuclear detection architecture, and is a vital component of U.S. government efforts to combat illicit trafficking in nuclear and radiological material. Specific SLD activities planned for the outyears, in light of the results of the strategic review, will be released after the President's budget is sent to Congress. We are more than happy to brief the subcommittee on specifics at that time.

Subcommittee. How did you go about your assessment?

Ms. Miller. In FY12, an SLD-led team of highly-experienced subject matter experts conducted an extensive strategic review over a number of months. The team assessed all-source data on country, regional and global factors relative to the nuclear trafficking threat. NNSA briefed the results of this review to the National Security Staff Countering Nuclear Threats Sub-Interagency Policy Committee (Sub-IPC), which included members of all relevant USG agencies including the Departments of State, Defense, Homeland Security, Justice, and others. SLD will complete identified international nuclear detection fixed deployments, expand mobile detection initiatives and maintain sustainability programs consistent with and supporting the strategies identified in the interagency Global Nuclear Detection Architecture (GNDA) International Implementation Plan. The review incorporated a broad range of data, including: known trafficking pathways; smuggling information; country geography and border porosity based on imagery and other sources; updated maritime shipping system information and trends; the availability of existing infrastructure to support detection equipment; the availability of financial and technical resources to continue operation and maintenance of SLD-provided equipment over the long term; results of interviews with key partner country stakeholders;

deployments in place by SLD and others; and political developments such as the expanding Russian-led Eurasian Customs Union. The review considered specific site and country information as part of a regional context to more effectively target resources. It also identified the “point of diminishing returns” after which equipping more ports produced limited benefit with respect to the volume of global and U.S.-bound cargo being scanned for radiation. Sensitive to budget realities in today’s fiscal environment, the review also overlaid fiscal constraints so that the optimal approach could be taken to close critical gaps in the detection architecture and improve performance effectiveness.

Subcommittee. Did you seek any interagency input?

Ms. Miller. Yes, the review solicited input from experts from across the interagency and concluded with a briefing of the SLD future strategy under the aegis of the National Security Staff Countering Nuclear Threats Sub-Interagency Policy Committee (Sub-IPC). NNSA conducted this review, and briefed it to the Sub-IPC, which involved all relevant USG agencies including the Departments of State, Defense, Homeland Security, Justice, and others. Although the interagency through the sub-IPC did not have the authority to provide budget approval, the content of SLD’s strategic briefing was consistent with and helped form the GNDA International Implementation Plan, which was the final product of the sub-IPC effort.

Subcommittee. What is the future of the SLD program?

Ms. Miller. Specific SLD activities planned for the outyears, in light of the results of the strategic review, will be released after the President’s budget is sent to Congress. We are more than happy to brief you and your staff on specifics at that time.

Subcommittee. Will your investment strategy and methods change?

Ms. Miller. Yes, as a result of our FY12 Strategic Review, our strategy and methods have been reformulated. We have tailored our approach to include refinements to our deployment strategy for mobile detection systems and fixed installations, as well as pursuing more outreach and technical exchange opportunities with partner countries and other entities. We have also developed several new approaches. We look forward to providing you with a more detailed briefing soon.

RADIATION SCANNER CONCERNS

Subcommittee. Ms. Harrington, a recent report from the Department of Homeland Security's Inspector General surveyed the usage of domestic radiation scanners at U.S. ports and found that some installed detectors were sitting idle and had simply been turned off. If this is a problem domestically, it begs the question of whether it is happening at foreign sites that the U.S. had paid for the installation of these detectors.

Have you performed a similar usage review of the SLD radiation scanners?

Ms. Harrington. Yes, we continually review the usage of SLD's deployed radiation detection systems through a variety of methods. SLD has unique access to several streams of information that enables SLD to review the health and usage of the deployed radiation detection systems. For instance, SLD conducted over 100 Assurance Visits in FY12 to verify system operation and performance. Additionally, SLD utilizes local maintenance provider reports, daily file analysis, Help Desk reporting, and other information to determine usage rates for deployed equipment.

Subcommittee. How is the scanning network accounted for across the various countries?

Ms. Harrington. SLD's unique access to several streams of information enables us to account for the scanning network used by our partners. These streams of information/data include (1) Daily Files, which are the raw data files from the radiation portal monitors (RPMs) that show whether a monitor is turned on and operating properly, (2) reports from our Local Maintenance Providers (LMPs), who visit sites routinely to perform preventive and corrective maintenance, (3) reporting from the SLD Help Desk, which tracks and responds to maintenance issues with SLD-deployed systems, (4) Assurance Visits where SLD teams visit sites to meet with partner country stakeholders to review system operations and maintenance, and (5) other regular meetings and correspondence with partner countries. Our close collaboration with partner countries also results in information about various types of detections using our equipment. In sum, SLD has a variety of data sources that we use to validate that SLD-deployed equipment is being used by our partner countries. SLD provides annual reporting on this and related issues of system performance and overall effectiveness. If

desired, SLD would be pleased to brief the subcommittee on this topic in more detail.

Subcommittee. Is there any way of verifying that the detectors are being used, or do we rely on assurances from the host country?

Ms. Harrington. SLD continues to collaborate closely with our partner countries after the systems are deployed to facilitate and validate system sustainability, and as noted above, SLD has unique access to several streams of information that enable us to account for radiation detection systems deployed by SLD. SLD provides annual reporting on this and related issues on system performance and overall effectiveness. If desired, SLD would be pleased to brief the Committee on this topic in more detail.

SHARING INFORMATION

Subcommittee. Ms. Harrington, we've been engaged on a massive program to buy large numbers of detectors and install them overseas to cut down on trafficking routes, but it is not clear whether we receive enough information back from host countries on how effectively they are being used. Clearly we are dealing with sensitive information, but the lack of information creates significant challenges in assessing the adequacy of our efforts.

How much information do we receive from our partner countries?

Ms. Harrington. SLD has unique access to several streams of information that enable NNSA to account for radiation detection systems deployed by SLD. These streams of information include (1) Daily Files, which are the raw data files from the radiation portal monitors (RPMs) that show whether a monitor is turned on and operating properly, (2) reports from our Local Maintenance Providers (LMPs), who visit sites routinely to perform preventive and corrective maintenance, (3) reporting from the SLD Help Desk, which tracks and responds to maintenance issues with SLD-deployed systems, (4) Assurance Visits where SLD teams visit sites to meet with partner country stakeholders to review system operations and maintenance, and (5) other regular meetings and correspondence with partner countries. In sum, SLD has a variety of data sources that we use to collect information on the use of SLD-deployed equipment by our partner countries. SLD provides annual reporting on this and related issues of system performance and overall effectiveness. If desired, SLD would be pleased to brief the Committee on this topic in more detail.

Subcommittee. Are you doing anything to improve how much information is shared?

Ms. Harrington. As noted above, SLD is fortunate to have multiple data streams available to the program in order to account for use of SLD-provided systems. Additionally, SLD has been able to create strong relationships with its partner countries, which help to facilitate the sharing of information. SLD maintains these relationships long after the installation work is completed and encourages SLD partners to contribute to building a strong network of regional and international partnerships working to prevent

illicit trafficking. Collaborative work with the IAEA, the EU and other international donors also helps improve information flow.

Subcommittee. Do you have access to any intelligence and law enforcement information? Do you use that information to make decisions on where to target investments?

Ms. Harrington. Yes. SLD uses multiple analytical tools and resources in the prioritization of its work. These tools include models, commissioned studies, and other resources including internal programmatic data, information from other U.S. government agencies, and information from partner countries, including information from our U.S. and international border security and law enforcement partners. This information was updated during the recent strategic review and is periodically reviewed with program plans modified as appropriate.

For its mobile detection work, SLD has a close collaboration with the FBI and with Interpol which also informs the provision of equipment and training to law enforcement agencies in partner countries.

Subcommittee. Should there be a requirement to share certain information in exchange for U.S. support?

Ms. Harrington. All SLD agreements with partner countries include a provision that the partner country will provide information to the USG on instances of illicit trafficking that are detected with the SLD-provided equipment. As noted above, SLD obtains much additional information from its partners through a variety of data sources. In general, SLD enjoys collaborative relationships with its partners that facilitate regular exchanges of information.

BUDGET AND MANAGEMENT

DIVERTING FUNDS TO NON-CORE PROGRAMS

Subcommittee. Ms. Harrington, your FY13 budget request contained an increasing amount funding for activities only loosely associated with a national nonproliferation strategy. Nearly half (46%) of the nonproliferation funding requested was to support the MOX program, the growing costs of legacy contractor pensions, and a new research and development project for uranium enrichment centrifuges.

Does your budget process incorporate a strategic assessment of whether you are diverting too many resources away from the core activities – which are largely the basis of Congressional support for this program?

Ms. Harrington. The annual budget process incorporates a number of strategic assessments of our programs to insure that those investments align with interagency approved program implementation strategies and key issues identified during the NNSA Programming process. . Disposition of US and Russian plutonium – the programmatic basis for the MOX Fuel Fabrication Facility and related disposition activities – is a core function of the Office of Defense Nuclear Nonproliferation. NNSA is working to ensure that this function is accomplished cost-effectively. The Office of Defense Nuclear Nonproliferation strategically aligns its resources in support of the national nonproliferation strategy as outlined in the National Security Strategy.

Subcommittee. What is the outlook for our core nonproliferation programs given that more and more resources are being devoted to these other programs? Will this trend continue?

Ms. Harrington. We are unable to provide an outlook at this time pending the release of the Administration's FY 2014 Budget.

CARRYOVER BALANCES

Subcommittee. Defense Nuclear Nonproliferation programs have historically carried over large unspent balances from year to year. You recently provided us with your semi-annual report on those balances and you've reported some progress in reducing the overall amount of carryover balances for some programs. You also made some improvements in the presentation of that information that this Subcommittee asked for.

What corrective actions have you taken to reduce these balances?

Ms. Harrington. As I noted in my testimony, we have been working very hard to reduce these balances. We have taken several actions to reduce unencumbered carryover balances. Each program details the work to be completed with those funds and determines who can complete that work. Upon determination, those funds are then obligated to that work. The funds then take one of several paths: 1) Funds are spent on labor to insure completion of the task thereby going from obligated to costed or spent; 2) funds are placed on a contract to complete the work and therefore encumbered by a contractual agreement between the U.S.G. and a country or company (these funds are encumbered until work is completed and verified after which the invoices are paid and funds are costed or spent). DNN provides a semi-annual reporting of funding status that includes funds that are costed, funds that are encumbered, and then funds that are unencumbered and available for on-going labor and contracting costs. At the end of FY 2012, DNN had unencumbered funds of approximately \$362M or less than 9% of funds available. DNN costed approximately \$205M per month in FY 2012, so the \$362M unencumbered carryover represented approximately 53 days of operation under the FY 2013 CR.

Subcommittee. Now that you've had some success operating with reduced balances, can you say what the appropriate level or threshold (as the GAO terms it) of balances should be to maximize the efficiency of these programs?

Ms. Harrington. We believe that an end of year level of 10% or less balances is an appropriate level of unencumbered carryover balances in situations where we do not have periods of multiple and lengthy continuing resolutions.

QUESTIONS FROM CHAIRMAN FRELINGHUYSEN

FUTURE OF NUNN-LUGAR COOPERATIVE THREAT REDUCTION AGREEMENT

Chairman Frelinghuysen. The Cooperative Threat Reduction umbrella agreement with Russia is set to expire in 2013. The Administration made no substantive changes to the CTR agreement when it was originally sent over to Russia for renewal last summer. But we know now that Russia desires some fundamental changes to the framework of our cooperation. It is essential that we be able to continue this work because there are still many threats and a considerable amount of work that needs to be done.

What went wrong in renewing the framework agreement and what are you doing to put together a new agreement that is acceptable to both countries?

Ms. Miller. Russia has indicated to us its interest in developing a new framework to allow cooperation to continue both inside Russia and expanding our cooperation to 3rd countries. The original CTR agreement was signed in 1992, when Russia was in a very different economic and political situation. While we initially proposed that the agreement be extended as is, our discussions progressed and it became clear that Russia did not believe that the structure and language of the existing CTR agreement was aligned with their current conditions, and they wanted an agreement that was updated to current times. We are supportive of an updated arrangement and are encouraged by the position expressed by our Russian counterparts as they take on an increasing share of responsibility for nuclear security.

We are working hard on a successor legal framework. NNSA is working to support the State Department as the lead for the United States, to inform the ongoing discussions. There was a very positive meeting in Moscow the week of February 13th, and we think there is a path forward that will be further defined at a follow-on meeting in March. We will continue to play an active role and we will be happy to keep the committee informed throughout the ongoing discussions.

Chairman Frelinghuysen. What problems do the Russians have with the current agreement?

Ms. Miller. As mentioned above, we believe that the Russian government is seeking a different agreement that reflects greater partnership. The stated Russian position is that after many years of our cooperative work together, they are ready to be fuller partners with us. We are encouraged by these statements and view it as an opportunity to deepen our cooperative work.

Chairman Frelinghuysen. Were you surprised by the Russian announcement that the current arrangement would not be continued?

Ms. Miller. We were not surprised; in addition to indications from some of our Russian government counterparts, it had been fairly widely reported in the Russian press that the existing agreement would not be renewed and instead should be replaced with a new framework.

Chairman Frelinghuysen. Will we be able to reach agreement by June 2013, when the current agreement expires?

Ms. Miller. We are optimistic about a new framework for our joint activities. We are encouraged by the most recent discussions, and we are working towards reaching a new framework before the current CTR agreement expires.

NEW IDEAS TO COUNTER EVOLVING THREATS

Chairman Frelinghuysen. The recent nuclear test has potentially grave defense implications for Japan and South Korea, which are within range of North Korea's existing missiles. And North Korea has made disturbing progress in developing a ballistic missile which could threaten the continental United States. We know preventing proliferation of weapons technology to North Korea is essential in dealing with this security situation. The NNSA has historically focused most of its resources on securing materials, while North Korea and Iran are getting bolder and the threats are evolving.

What role does the Defense Nuclear Nonproliferation program play in the Administration's strategy to prevent the proliferation of nuclear weapons to North Korea and Iran?

Ms. Miller. The Iranian and North Korean nuclear programs remain urgent challenges. DNN plays an important role in the Administration's nonproliferation policy with respect to Iran and North Korea.

DNN provides support by monitoring and analyzing the technological advances being made in the nuclear programs of these countries as well as the facilities and the personnel involved. DNN develops and maintains technologies to enable and implement a verification mission in both countries. DNN provides technical briefings to the Administration and the IAEA on technical development in both countries' nuclear programs.

DNN provides real time technical analysis and support to U.S. Interagency interdiction activities for commodities of proliferation concern; technical analysis for sanctionable cases pursuant to the Iran, North Korea and Syria Nonproliferation Act; and produces reports on specific commodities that countries such as Iran and North Korea are seeking to acquire illicitly to advance nuclear weapons programs.

Chairman Frelinghuysen. Are there any new ideas of how we position our programs to meet the evolving threat?

Ms. Miller. As DNN sees changes in North Korea and Iran's nuclear programs, we continue to refine our programs to meet the continuing verification challenges, in consultation with the U.S. interagency. We have

also accelerated our efforts to stem the spread of sensitive technology to countries of concern through participation in the Nuclear Suppliers Group's (NSG) Fundamental Review of the NSG Trigger and Dual-Use Lists.

Chairman Frelinghuysen. There is a big focus in the nonproliferation field for moving forward with new international agreements to strengthen the global nonproliferation regime. Are there any actions the U.S. can do on its own without treaties or waiting on a consensus for international actions?

Ms. Miller. There are important multilateral and unilateral efforts to combat the proliferation of nuclear weapons. DNN has an important role in both types of activities. NNSA participates in the vigorous U.S. interagency effort to issue and enforce sanctions against both North Korea and Iran.

DNN works closely with the Department of State in creating and strengthening WMD export control licensing and enforcement capacities in foreign partner countries to help prevent nuclear weapons-related production equipment and components from reaching Iran and North Korea. DNN also provides training on WMD production equipment and components to a wide range of U.S. enforcement agencies through the U.S. Export Enforcement Coordination Center to help ensure that North Korea and Iran are unable to illicitly acquire these items from the U.S. industrial base. In addition, DNN provides technical support to the U.S. interagency review process for US export license applications for WMD-related dual use items and is a key technical participant in USG interdiction and sanctions activities.

GAO INVESTIGATION INTO MOX

Chairman Frelinghuysen. Madam Administrator, this Subcommittee has asked the GAO to look into the status of your planning efforts in order to ascertain how well you really understand the costs of this program. That investigation is currently underway.

Do you have any comments on what has led to the cost growth associated with the construction of the MOX plant?

Ms. Miller. In the oral testimony, we laid out the drivers that have led to cost growth associated with the construction of the MOX Fuel Fabrication Facility (MFFF). The project has experienced and continues to experience cost and schedule pressures, including (1) that the initial project baseline was finalized before design was completed and the bottom-up estimate identified increased quantities of commodities; (2) increased costs for engineered equipment and commodities; (3) increased installation rates to meet stringent nuclear quality standards; and (4) increased attrition of personnel.

Chairman Frelinghuysen. We've heard lots of figures. What order of magnitude are we looking at in terms of cost growth on the MOX project?

Ms. Miller. NNSA has received a baseline change proposal (BCP) from MOX Services, the prime contractor for the MFFF, and is currently evaluating the proposal. As mentioned in the oral remarks, until the new baseline is validated and approved the number could change significantly through the evaluation process.

Chairman Frelinghuysen. Where are you at in your re-baseline process and when can we expect to have a new baseline and contract in place to complete construction?

Ms. Miller. MOX Services submitted a BCP to NNSA in September 2012 to account for the cost and schedule pressures. The Department is currently reviewing the proposal and expects to complete its review of the BCP in 2013.

Chairman Frelinghuysen. How will you improve federal oversight as you go forward? Will the new contract incorporate any new mechanisms to provide more effective federal oversight?

Ms. Miller. In 2012 NNSA changed the structure of its organization to align the contract and project management of its construction projects, allowing the agency to hold contractors more accountable. New key personnel responsible for management of the MOX project, both on the contractor and federal sides, are being put in place. An independent review of the remaining scope, cost, and schedule to complete the project is being conducted to ensure that not only are the costs estimated reasonable and appropriate, but that sound, effective project management systems are in place before the government commits additional resources to this effort.

Construction

Overview

The main drivers for the cost increases are (1) initial project baseline was finalized before design was completed and the bottoms-up estimate identified increased quantities of commodities; (2) increased costs for engineered equipment and commodities; (3) increased installation rates to meet stringent nuclear quality standards; and (4) increased attrition of personnel.

99-D-143, Mixed Oxide Fuel Fabrication Facility, Savannah River Site, Aiken, South Carolina

Project Data Sheet is for Construction

1. Significant Changes

The four primary causes of the cost growth include the following:

1. A main driver for the cost increase is that the project was baselined before design was complete. At the time of the initial baseline in 2006, the overall design of the project was about one-third complete with civil/structural design approximately two-thirds complete. Due to the incomplete design, some commodity quantities (e.g., pipe, duct, supports) were underestimated. For example, the 2006 baseline included 735 miles of electrical cable while the final design has 1,395 miles. Supports estimated in the 2006 baseline were simple off-the-shelf types, while the final design required primarily engineered supports that are more robust and more expensive to both construct and install. In addition to increased quantities, the prices of commodities and engineered equipment have been higher than estimated. An example of increased costs for commodities is electrical cable, which has increased five times due to rising copper prices. The final costs of engineered equipment (tanks, gloveboxes, furnaces) has averaged 60% higher than the 2006 baseline estimates.
2. Another significant driver of the cost increase is that equipment and commodity installation rates, (e.g., dollars per foot to install pipe) are higher than anticipated in 2006 for two primary reasons. First, nuclear expertise in the construction industry had become nearly non-existent which has required more classroom and on-the-job training for personnel. Second, implementation of license requirements is more onerous than anticipated. NRC requirements for fuel fabrication facilities require not only protection of the public (requirement for nuclear reactors) but also protection of the workers. This additional requirement significantly added to the number of safety systems, including non-radiological systems such as chemical hazards.
3. Regarding the cost increases for engineered equipment, the project experienced difficulty identifying suppliers and subcontractors with the ability and experience to fabricate and install equipment to the requirements of Nuclear Quality Assurance (NQA)-1 standard for nuclear work. MOX Services continues to have dedicated MOX facility quality assurance and engineering personnel stationed at supplier and subcontractor locations to oversee activities and ensure fabricated equipment and installations meet NQA-1 requirements.

4. Lastly, MOX Services has experienced significantly greater than expected turnover of personnel due to the U.S. commercial nuclear industry demands. The loss of experienced engineering and technical staff to other nuclear industry projects in neighboring states has continued from last year. MOX Services turnover rate was over 19% in FY 2012. As a result, the project has experienced a nearly complete turnover of construction management personnel over the last several years. Finding experienced replacements has become difficult and expensive. In many cases, replacement personnel have to be hired without the requisite nuclear experience and therefore must be trained prior to performing NQA-1 work.

ADDITIONAL MEMBER QUESTIONS

QUESTIONS FROM MR. SIMPSON OF IDAHO

ADVANCED TEST REACTOR FUNDING

Mr. Simpson. Admiral Richardson, your program provides important sponsorship for the operation of the Advanced Test Reactor (ATR).

Can you provide, for the record, how much funding your program has provided for the ATR over the last five years?

Admiral Richardson.

The following table represents the funding amounts for ATR enacted by law:

\$K	<u>FY07</u>	<u>FY08</u>	<u>FY09</u>	<u>FY10</u>	<u>FY11</u>	<u>FY12</u>
NR funded operations	63,516	56,361	60,300	61,800	51,150	62,100
NE funded operations	11,202	21,277	28,781	34,210	40,939	37,865
ATR Base - Infrastructure	5,771	6,918	6,832	8,195	7,515	7,341
ATR Life Extension Program	0	12,163	22,261	28,277	19,366	22,330
ATR National Scientific User Facility	0	0	6,902	9,156	6,419	6,214
Total ATR Funding	80,489	96,719	125,076	141,638	125,389	135,850

Mr. Simpson. Can you also give us an assessment if those contributions have kept up with the costs of operating the reactor?

Admiral Richardson. ATR is completing and supporting NR test objectives. The funding NR provided over the last six years is consistent with prior agreements within DOE about the expected and planned NR contribution to the ATR operations budget.

We continue to work closely with ATR to identify the appropriate level of Naval Reactors' contribution to operating ATR.

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